

Serviceanweisung

Service manual

SPP 95

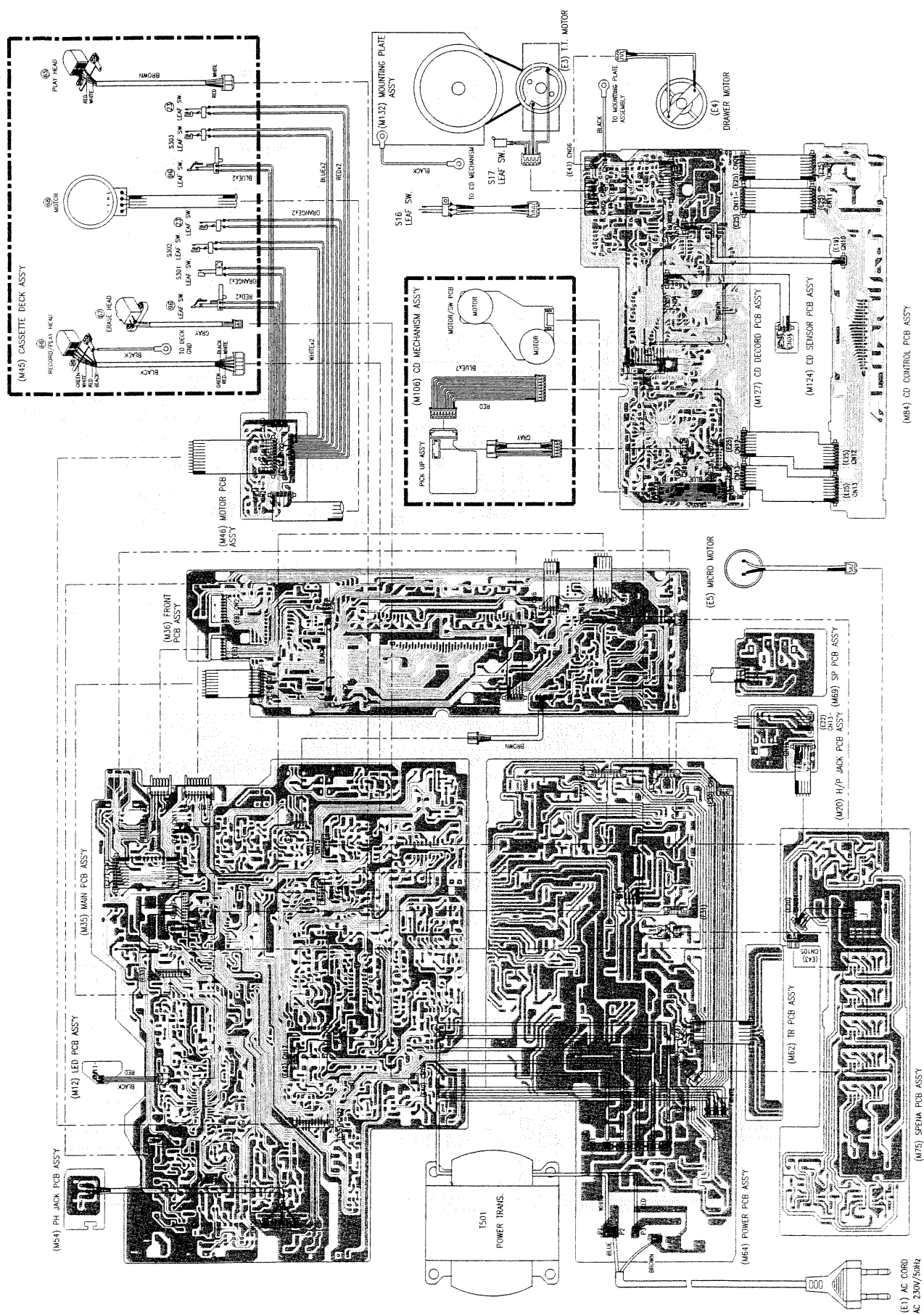


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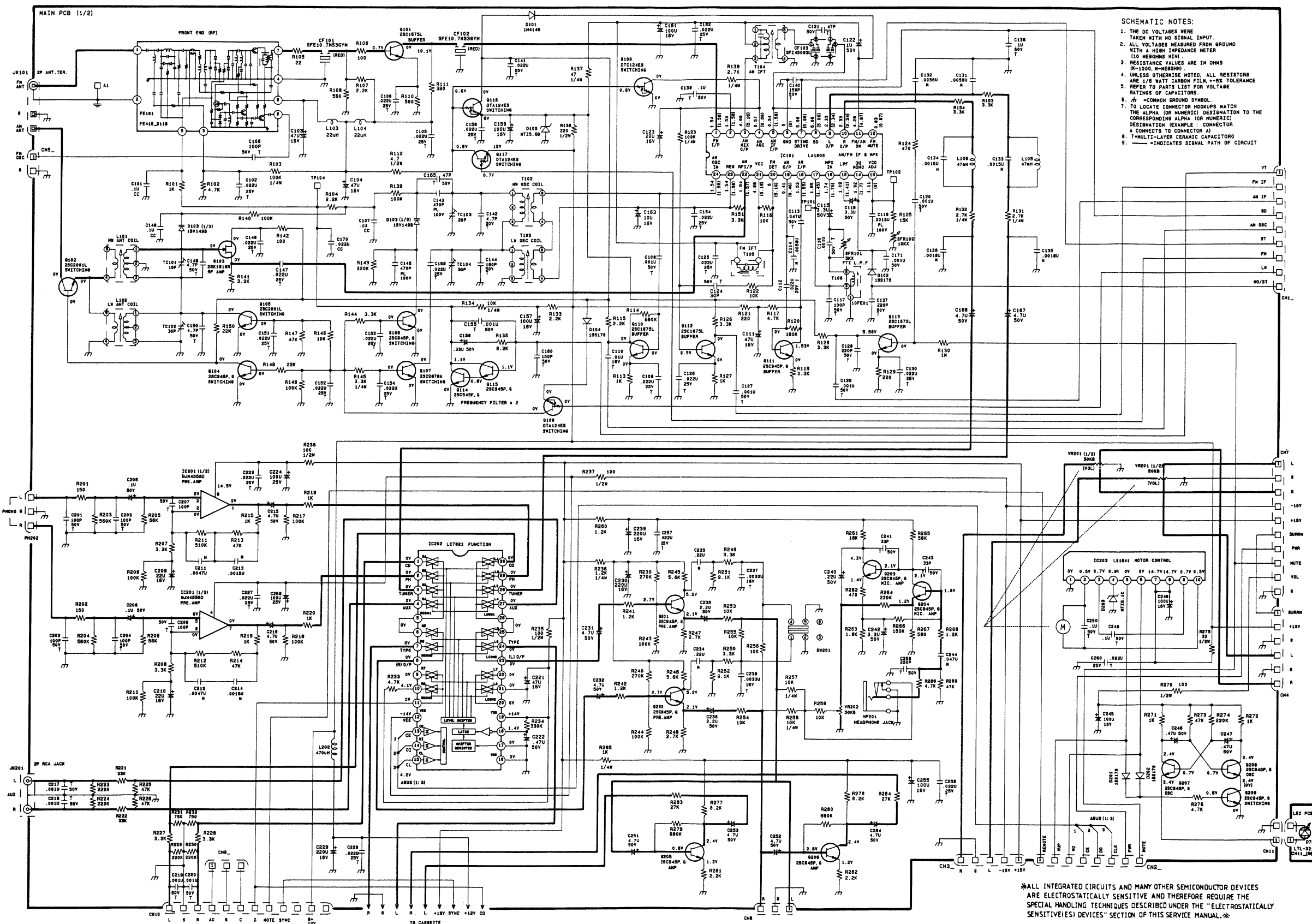
Verdrahtungsplan

Wiring diagram



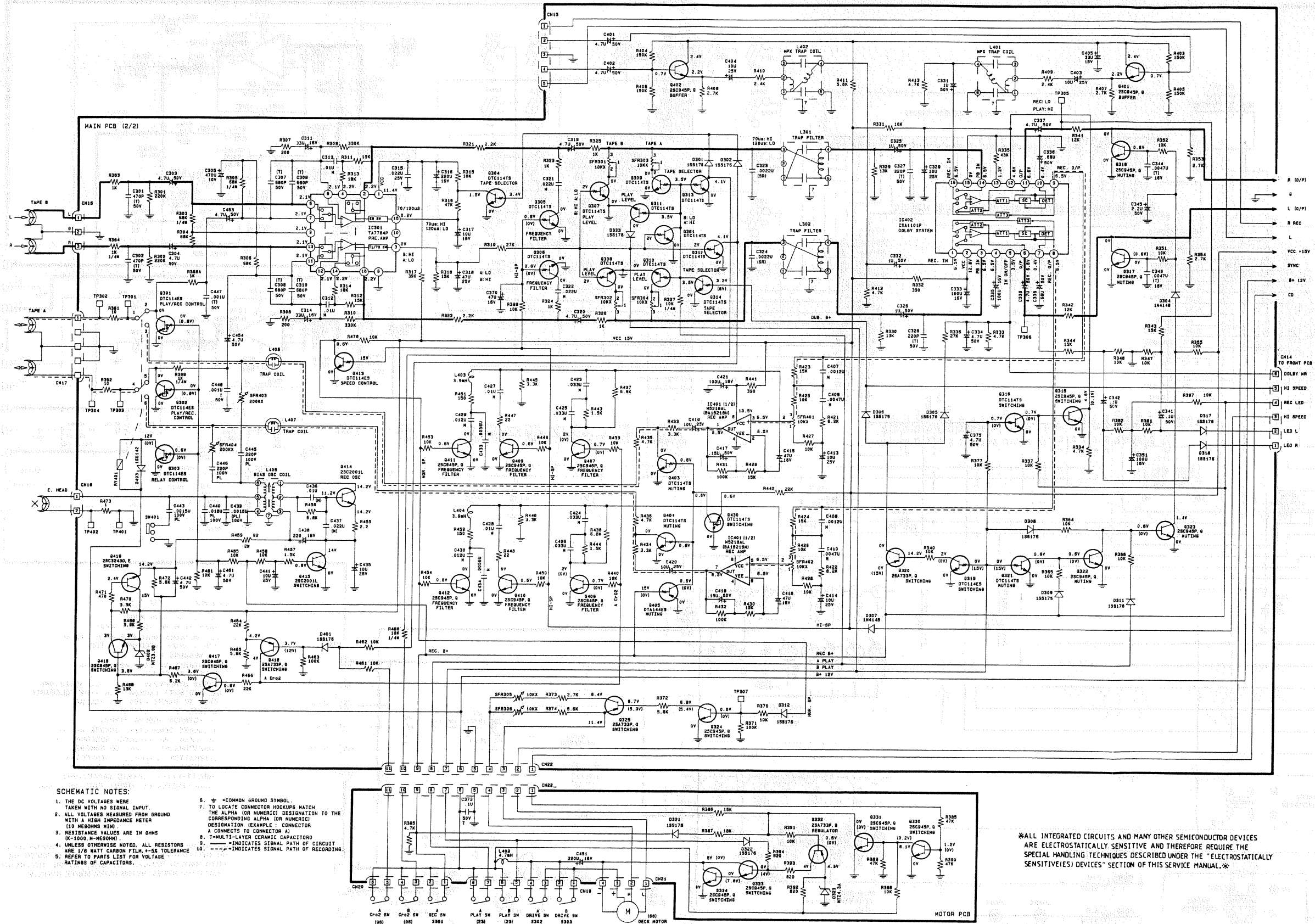
Schaltbild Tuner/Vorverstärker

Circuit diagram tuner/pre-amplifier



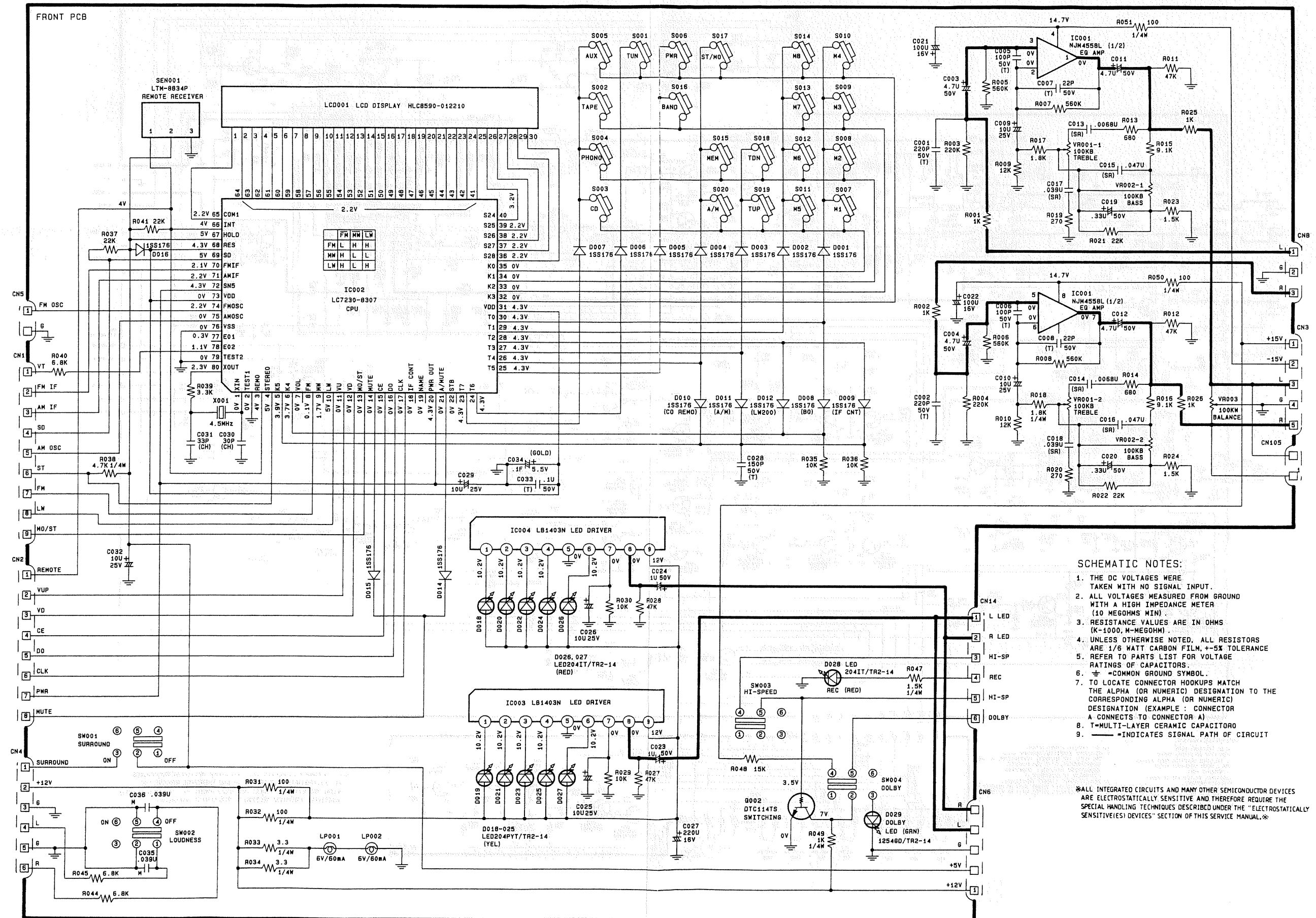
Schaltbild Cassette

Circuit diagram cassette

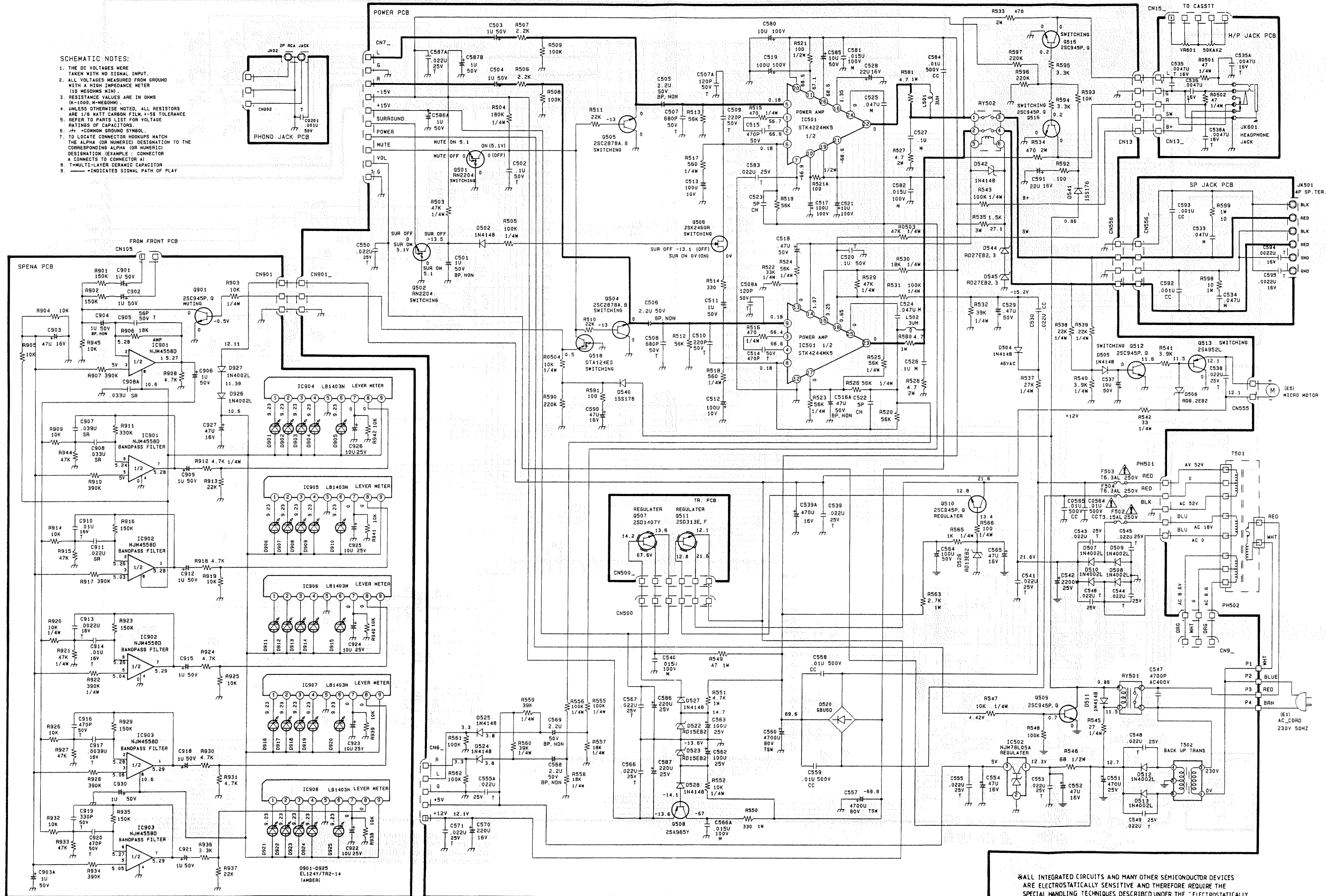


Schaltbild Frontplatine

Circuit diagram front P.C.B.

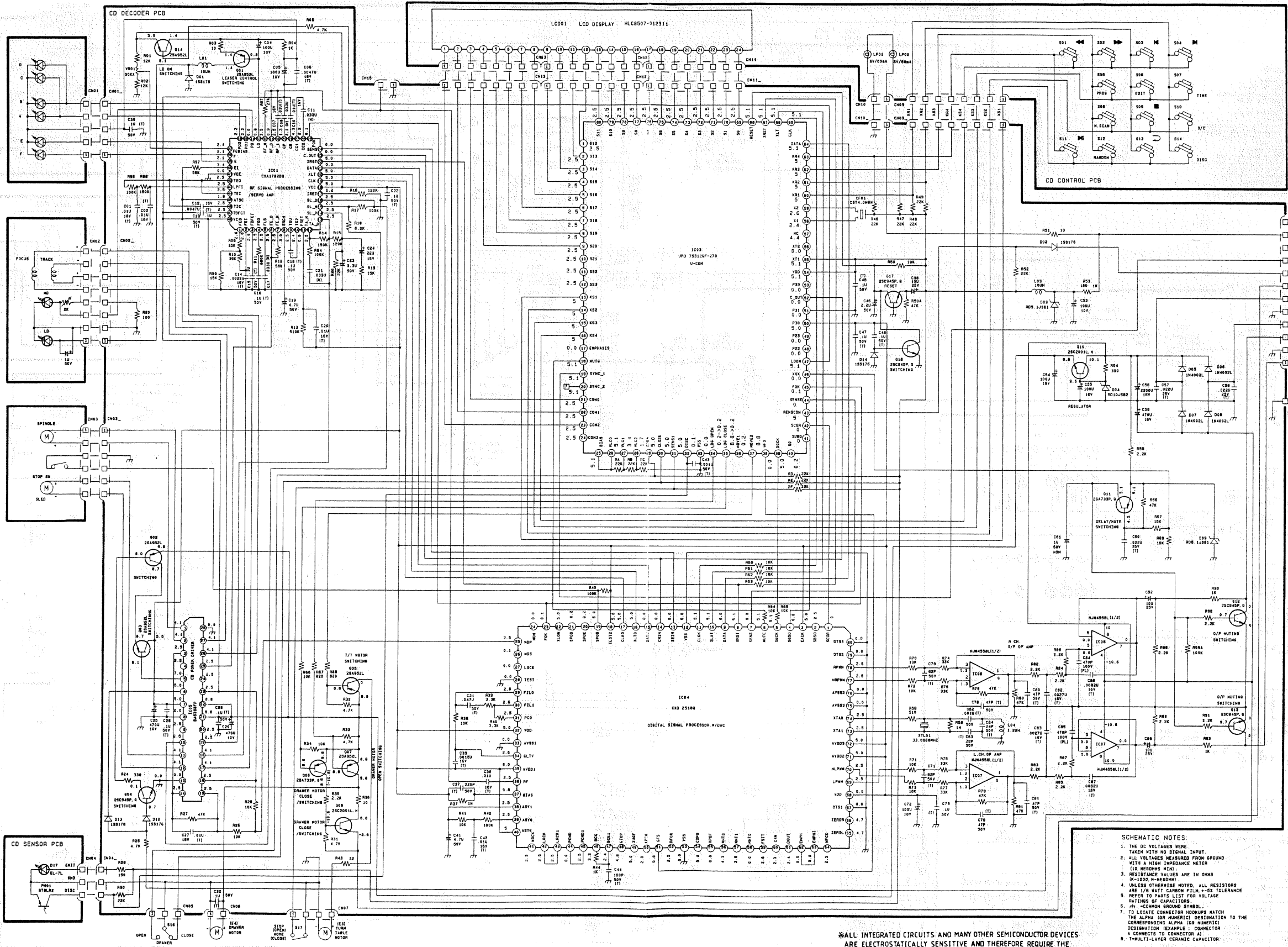


Schaltbild Netzteil/Endstufe
Circuit diagram amplifier



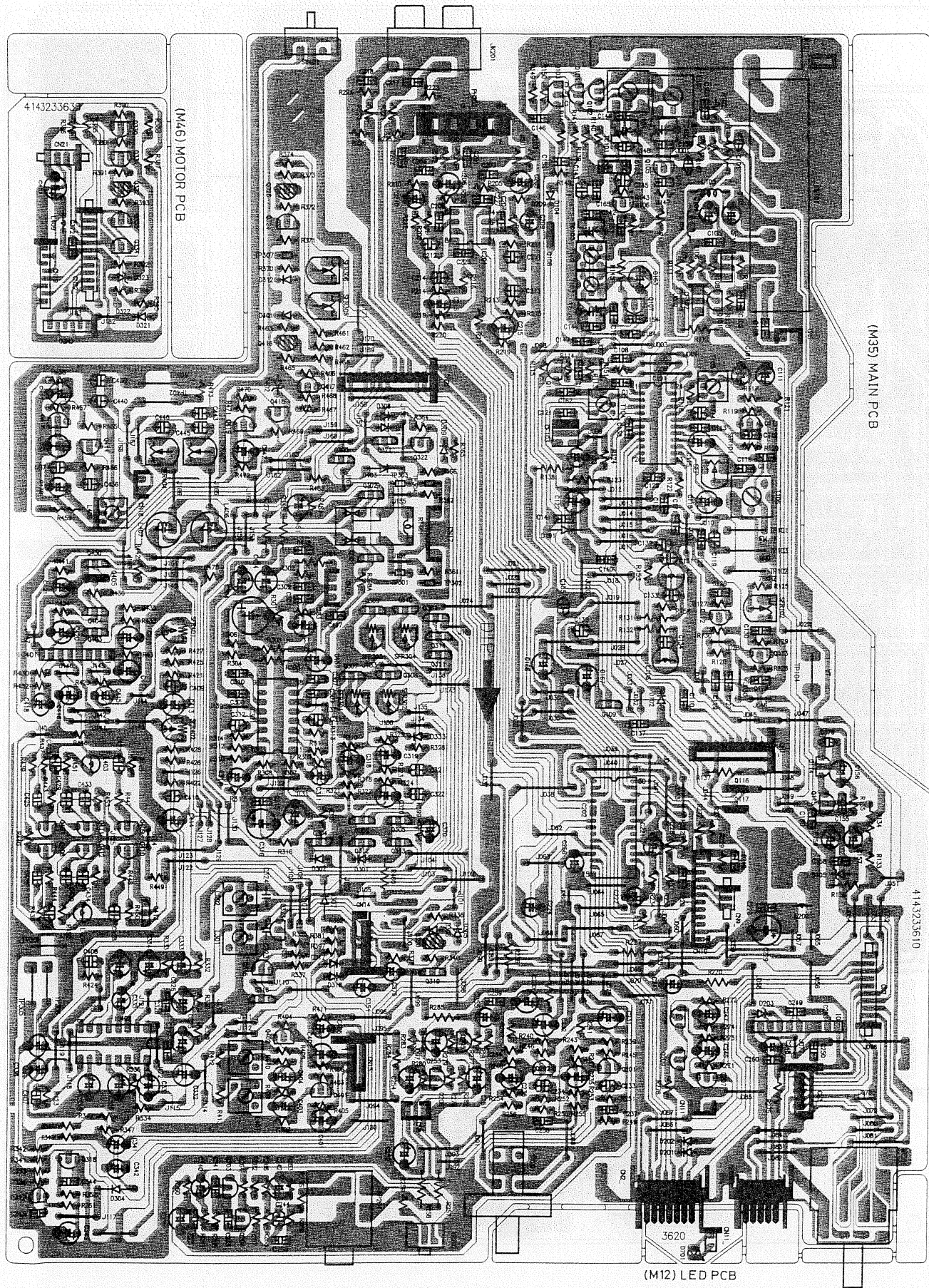
Schaltbild CD-Spieler

Circuit diagram CD player

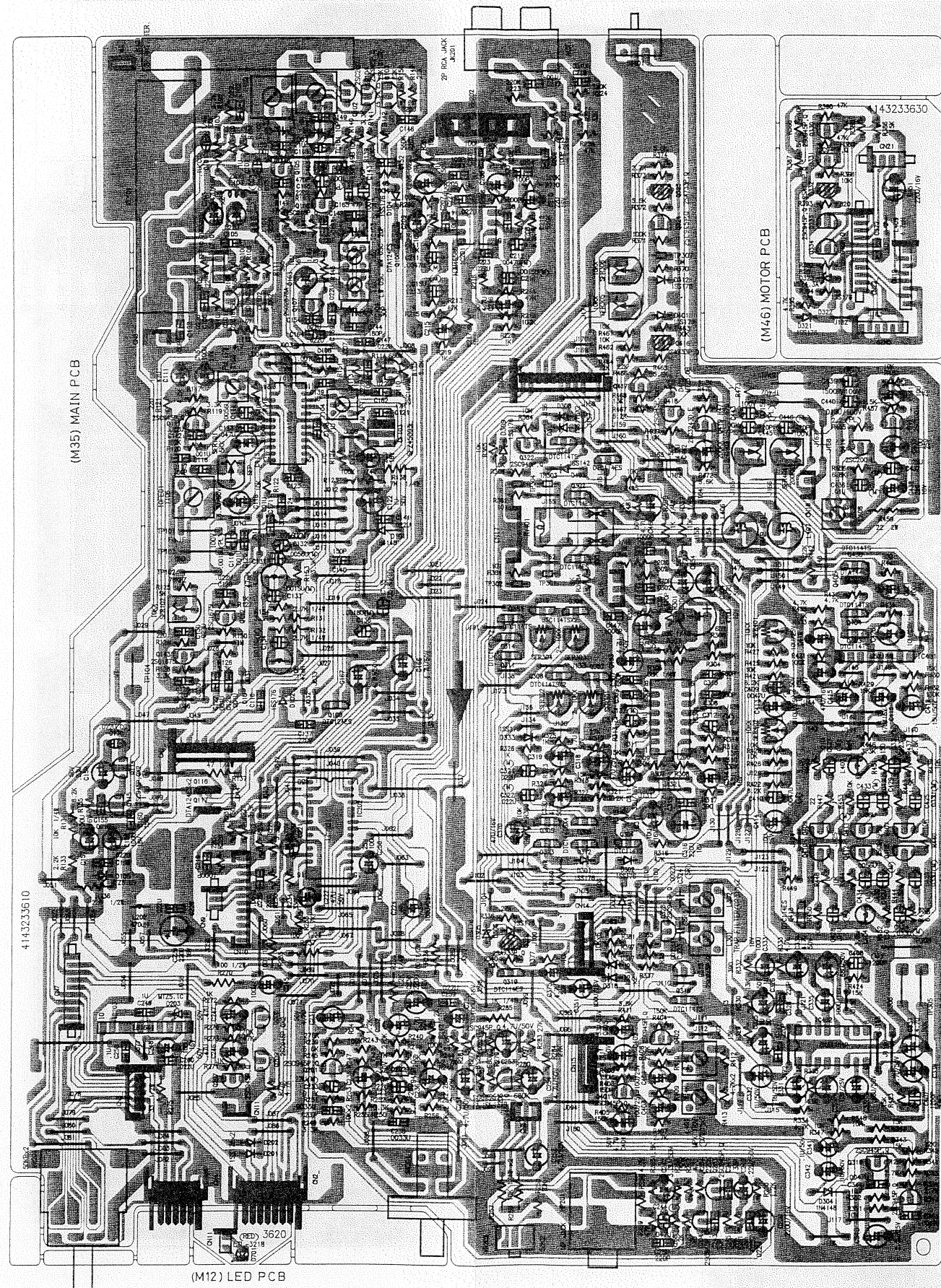


Hauptplatine
Main P.C.B.

Bestückungsseite/Top view

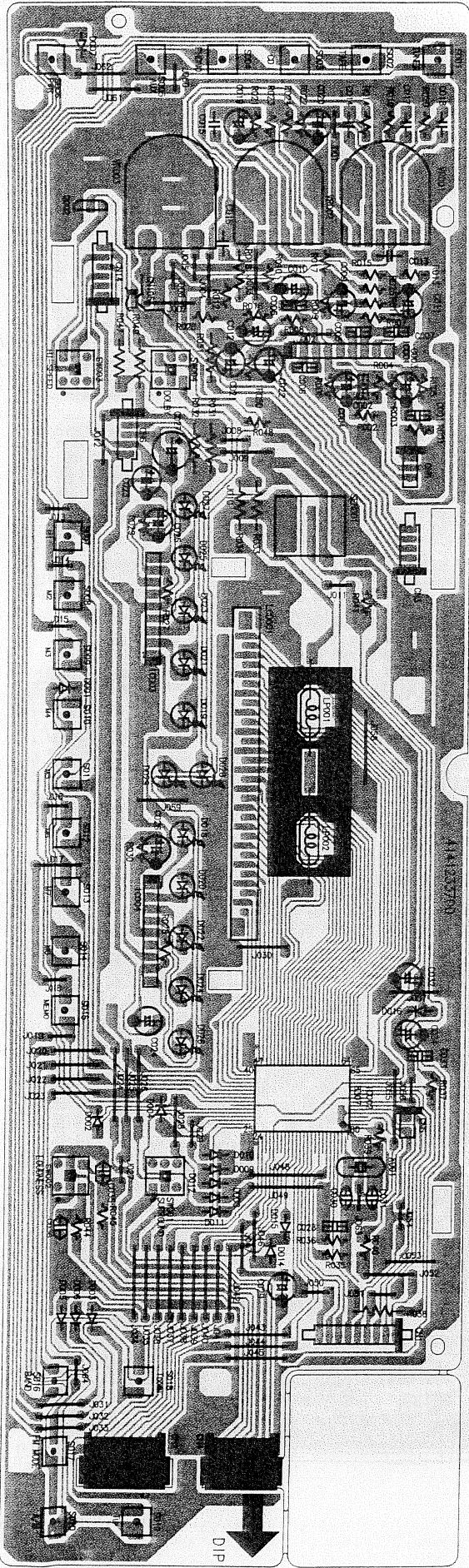


Leiterbahnseite/Bottom view

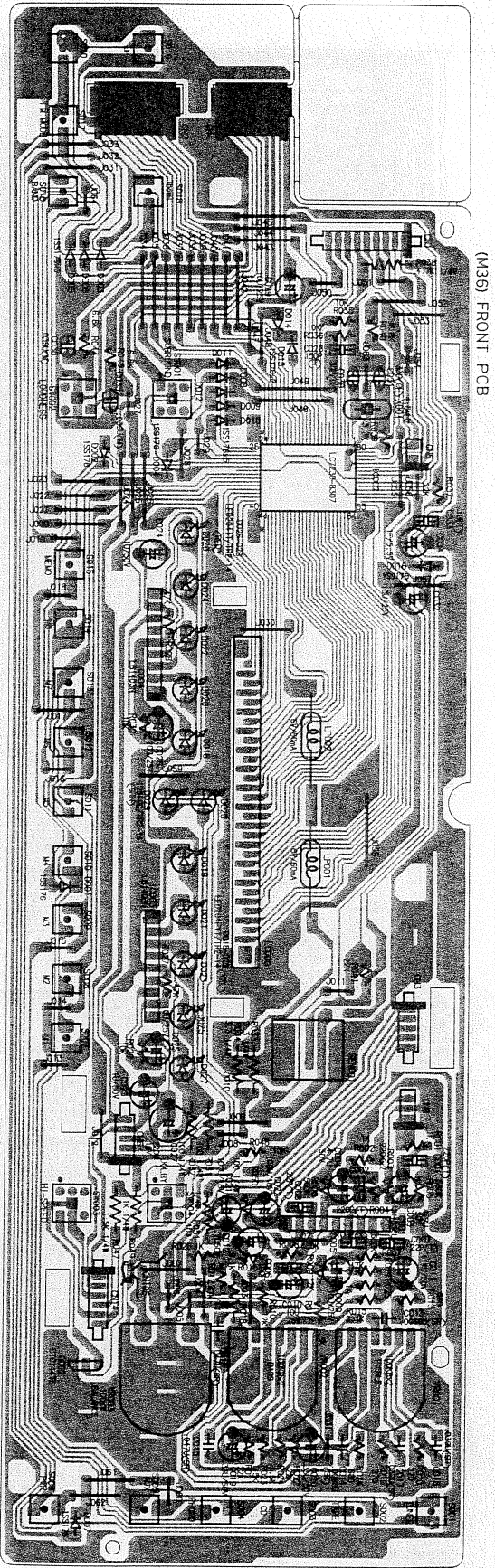


Frontplatine
Front P.C.B.

Bestückungsseite/Top view

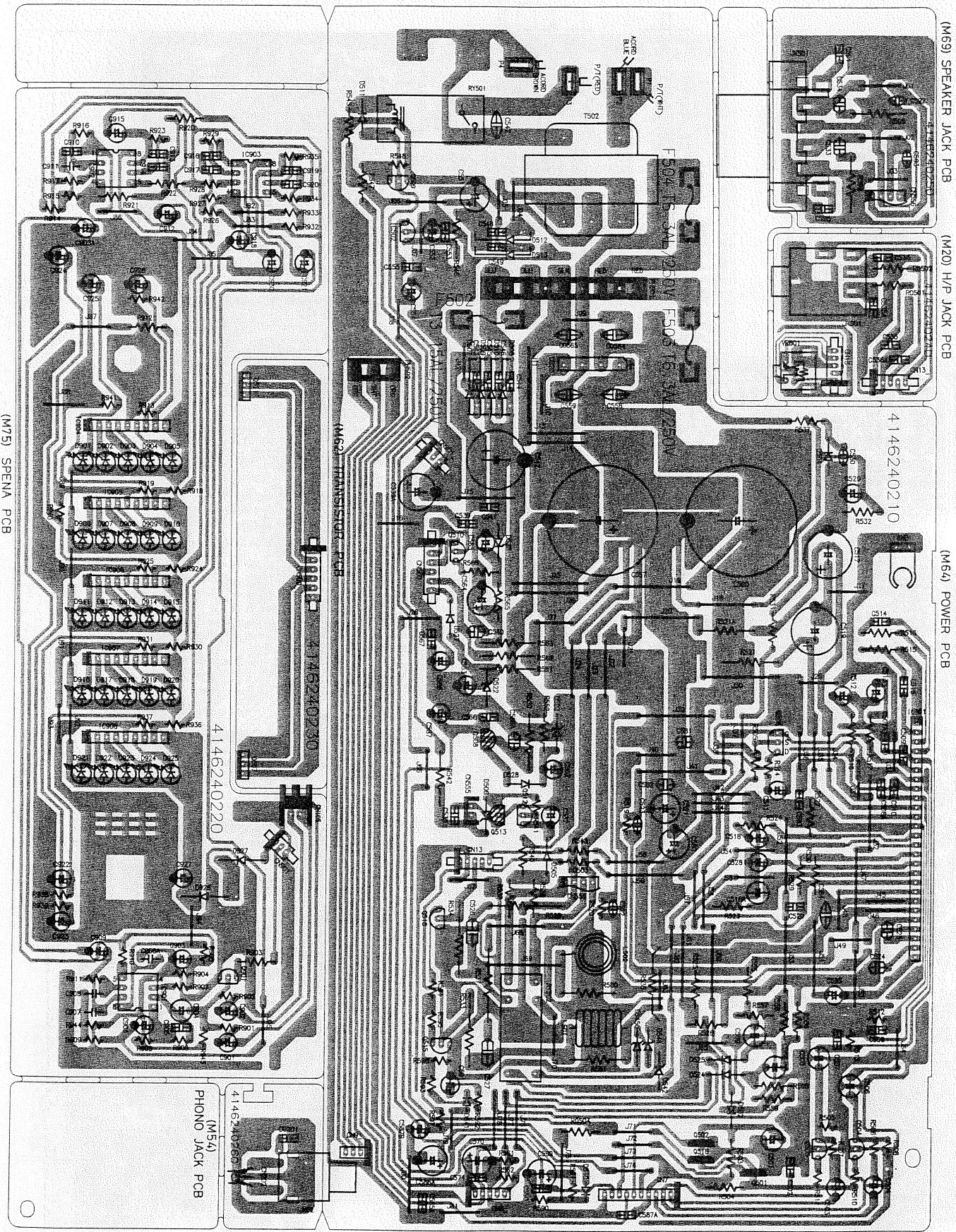


Leiterbahnseite/Bottom view

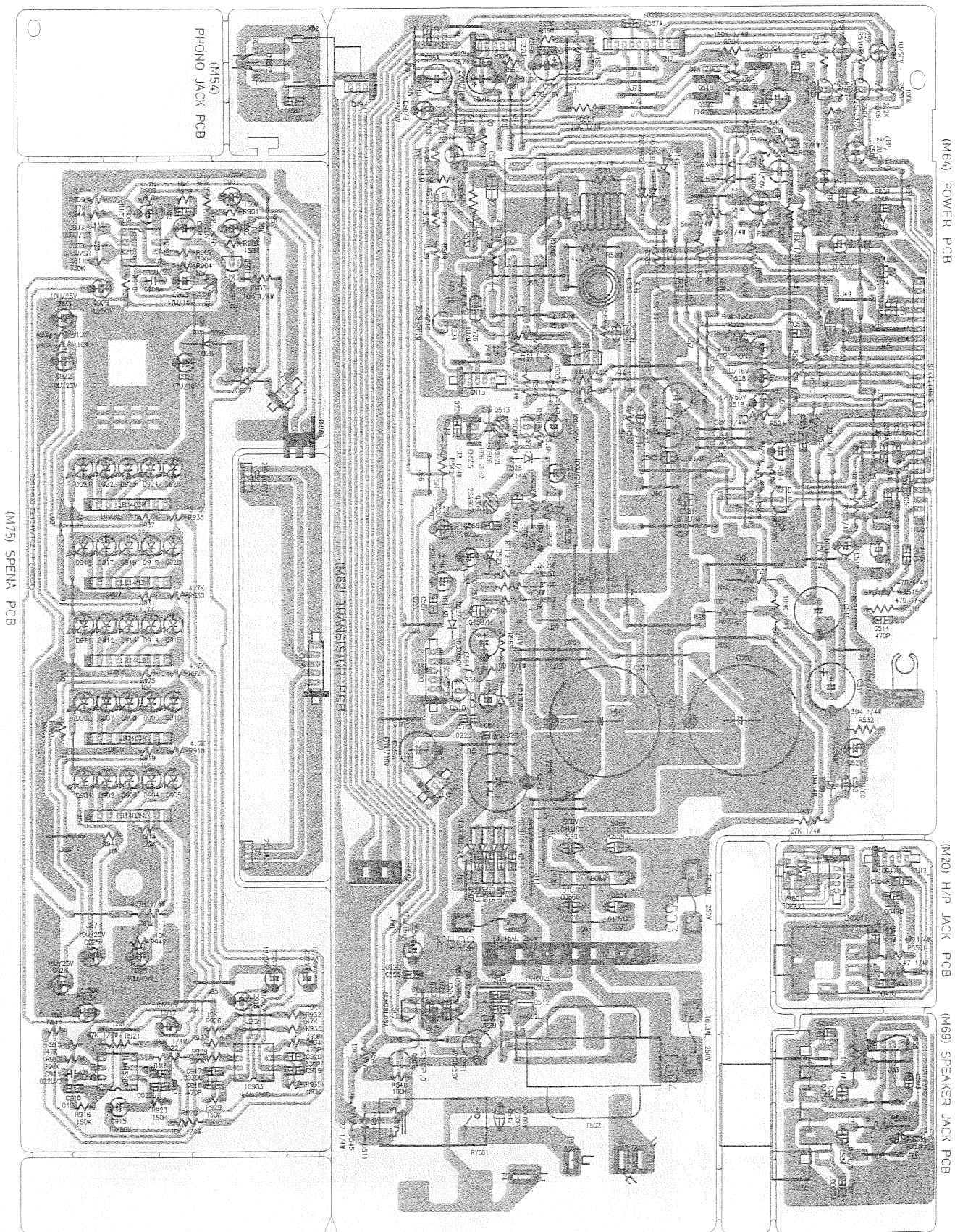


Netzteil-/Endstufenplatine
Amplifier P.C.B.

Bestückungsseite/Top view



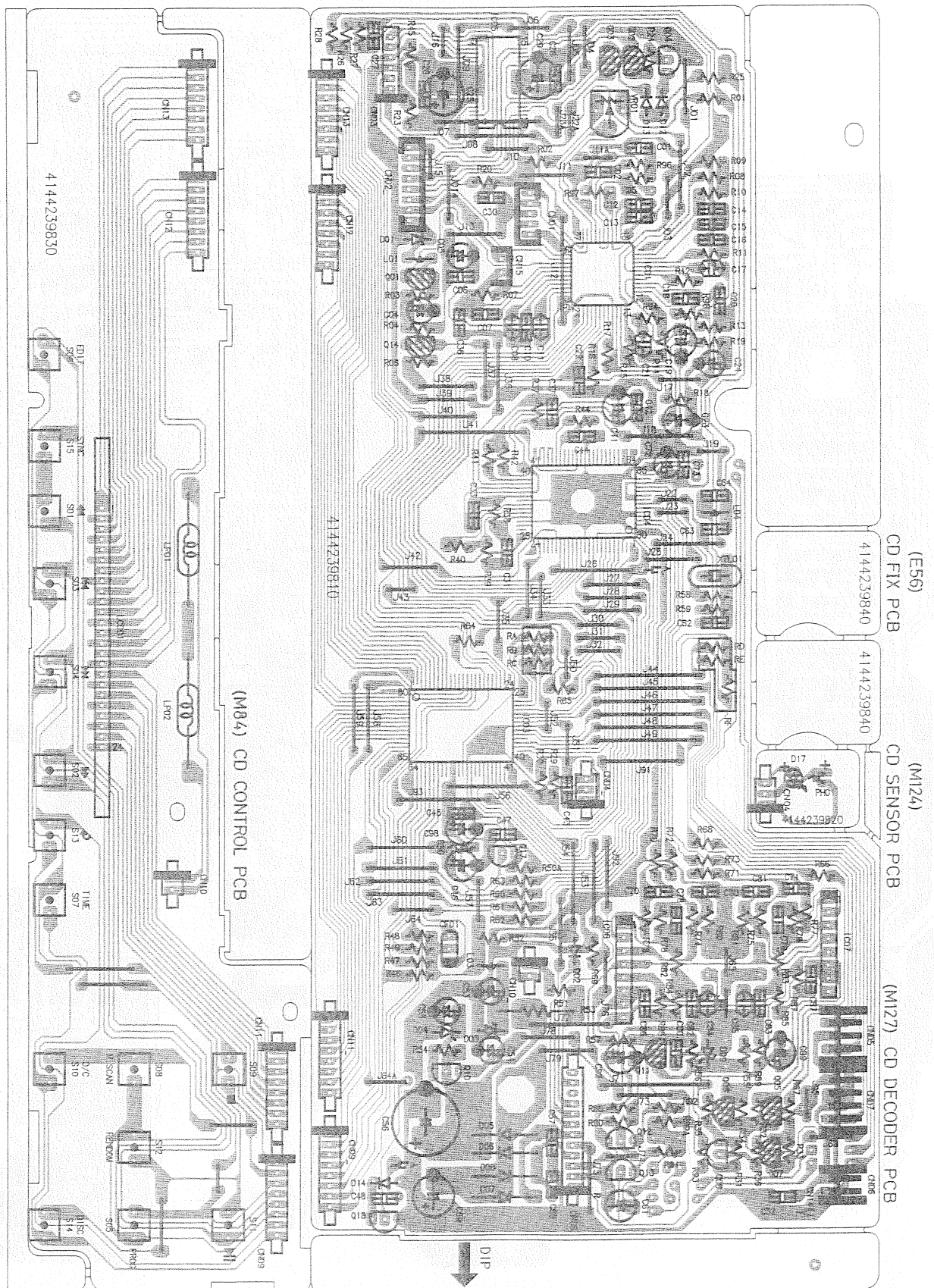
Leiterbahnseite/Bottom view



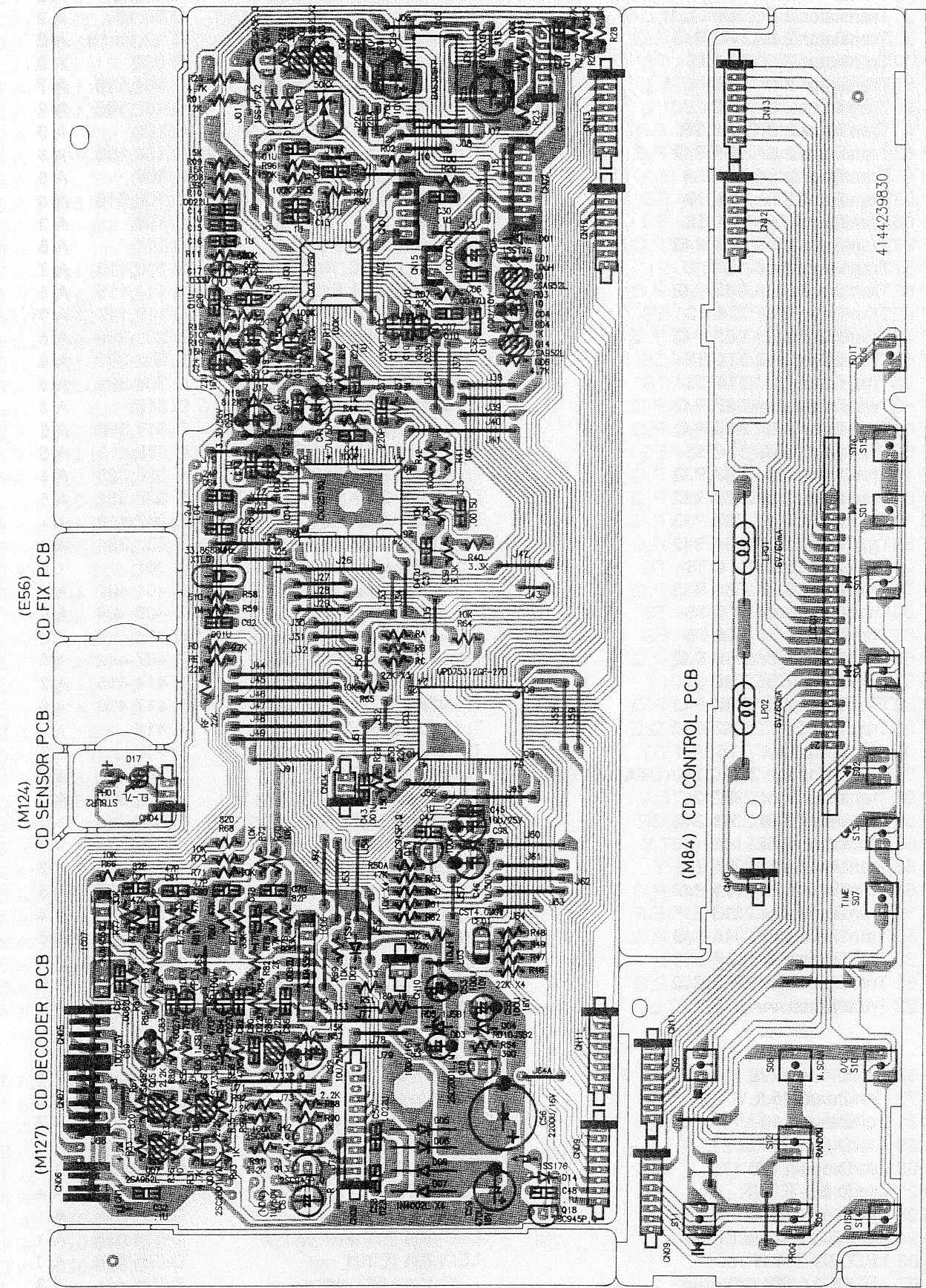
CD-Platinen

CD P.C.B.'s

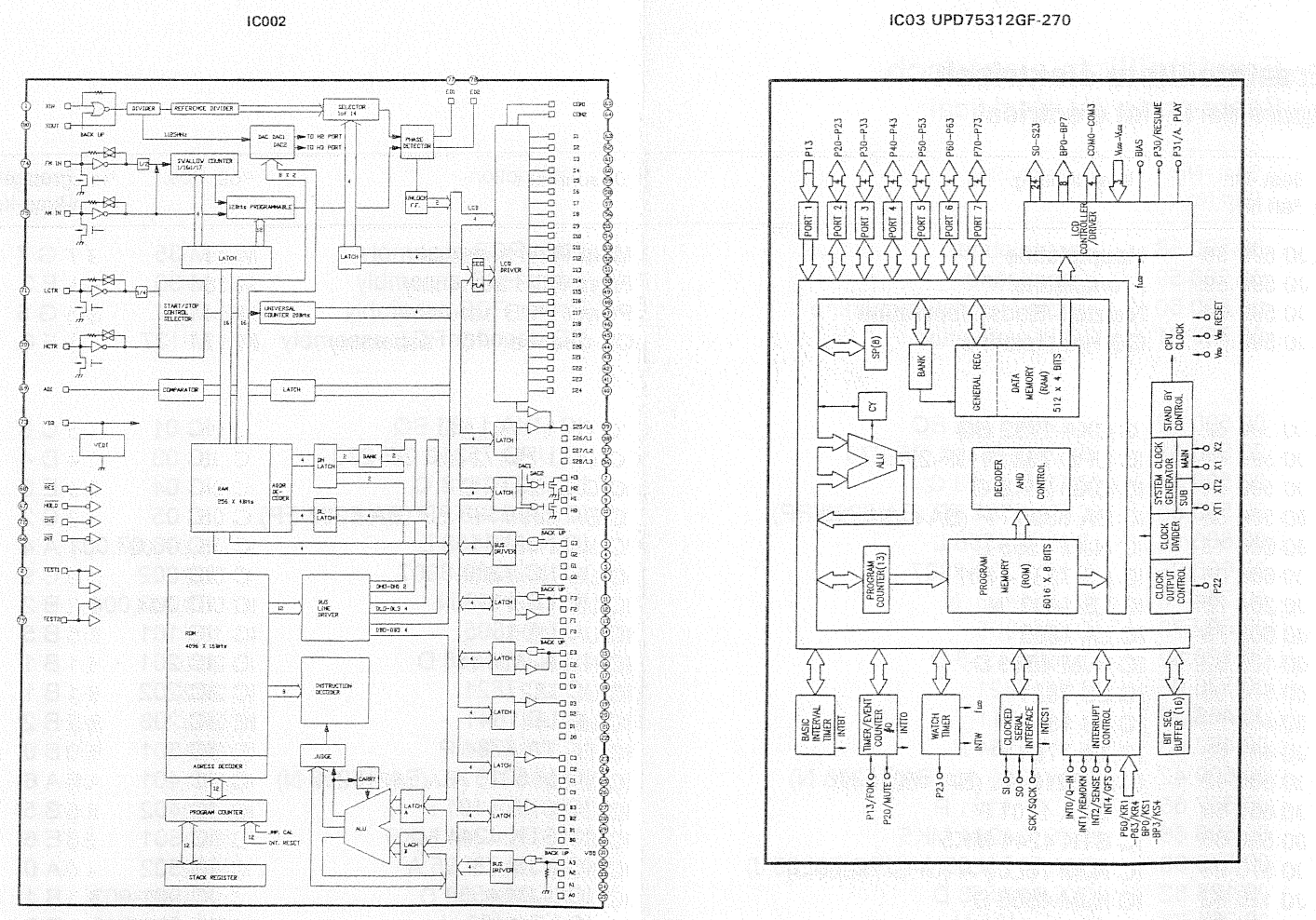
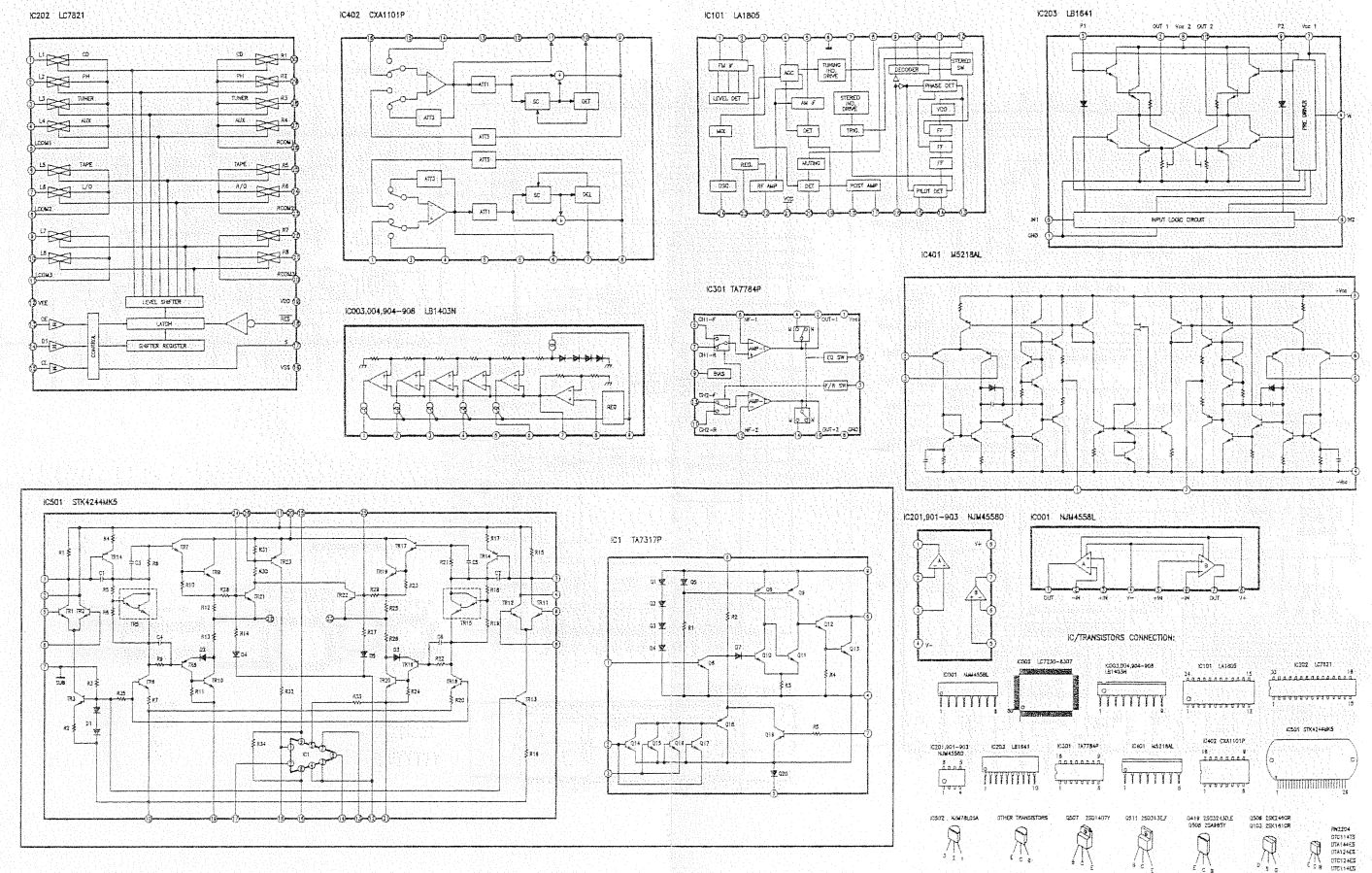
Bestückungsseite/Top view



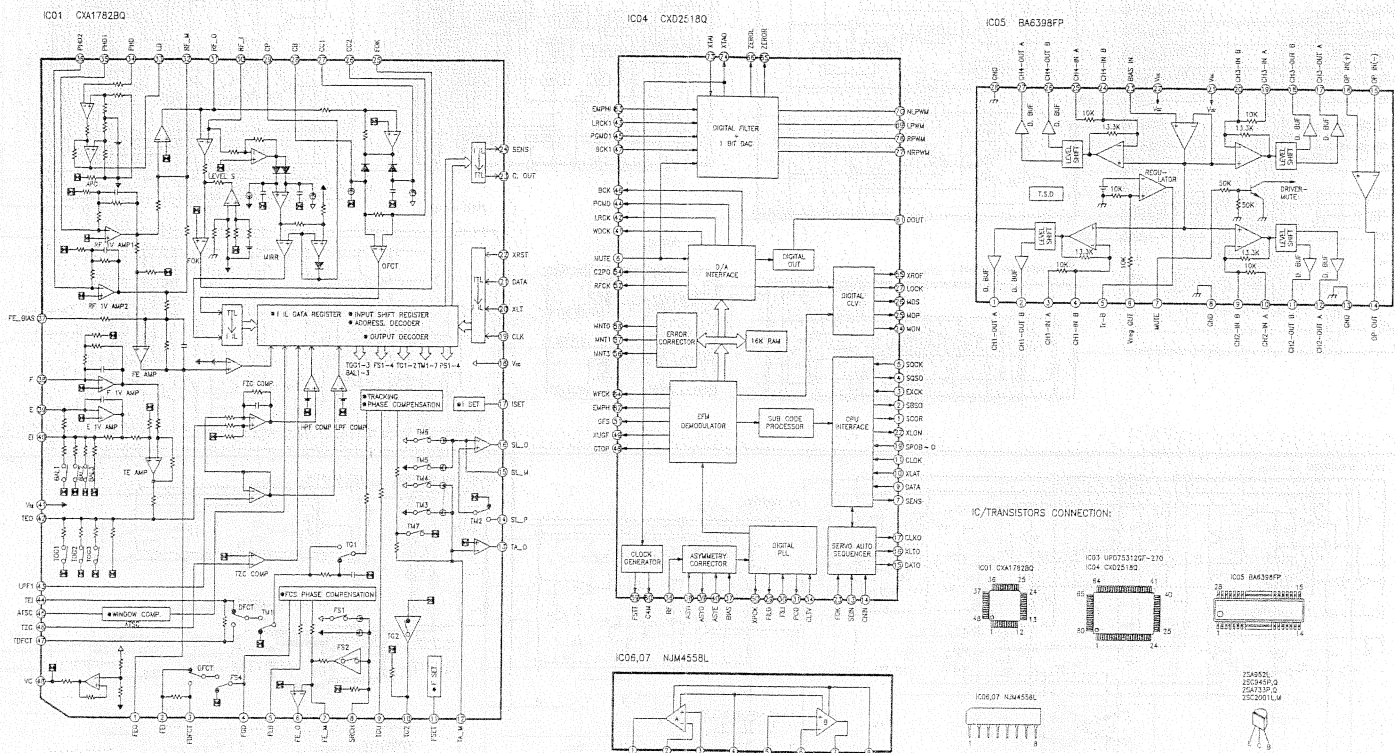
Leiterbahnseite/Bottom view



IC Blockdiagramme IC block diagrams



IC Blockdiagramme
IC block diagrams



Ersatzteilliste elektrisch
Spare parts list electrical

Best.-Nr. Part No.	Bezeichnung	Description	Pos.	Preisgruppe Price-key
00 590 58	Hauptplatine	Main PCB assembly	M 35	G 7
00 590 59	Frontplatine	Front PCB assembly	M 36	F 3
00 590 60	Netzteil-/Endstufenplatine	Power PCB assembly	M 64	G 5
00 590 61	CD Hauptplatine	CD decoder PCB assembly	M 127	F 6
00 590 62	IC CXA 1782 BQ	'IC CXA 1782 BQ	IC 01	C 8
00 590 63	IC UPD 75312 GF-270	IC UPD 75312 GF-270	IC 03	D 4
00 590 64	IC CXD 2518 Q	IC CXD 2518 Q	IC 04	E 0
00 590 65	IC BA 6398 FP (BA 6296 FP)	IC BA 6398 FP (BA 6296 FP)	IC 05	C 2
00 666 13	IC NJM 4558 L	IC NJM 4558 L	IC 06,07,001	A 4
00 666 05	IC LC 7230-8307	IC LC 7230-8307	IC 002	C 9
00 264 76	IC LB 1403 N	IC LB 1403 N	IC 003,004	B 2
00 602 73	IC LA 1805	IC LA 1805	IC 101	B 5
00 128 82	IC NJM 4558 D	IC NJM 4558 D	IC 201	B 1
00 576 95	IC LC 7821	IC LC 7821	IC 202	B 1
00 468 29	IC LB 1641	IC LB 1641	IC 203	B 2
00 483 63	IC TA 7784 P	IC TA 7784 P	IC 301	B 0
00 600 42	IC M 5218 AL (BA 15218 N)	IC M 5218 AL (BA 15218 N)	IC 401	A 6
00 667 66	IC CXA 1101 P	IC CXA 1101 P	IC 402	B 5
00 590 66	IC STK 4244 MK5	IC STK 4244 MK5	IC 501	E 6
00 576 98	IC NJM 78L05 A (UPC 78L05 J)	IC NJM 78L05 A	IC 502	A 0
00 128 82	IC NJM 4558 D	IC NJM 4558 D	IC 901-903	B 1
00 264 76	IC LB 1403 N	IC LB 1403 N	IC 904-908	B 2

Best.-Nr. Part No.	Bezeichnung	Description	Pos.	Preisgruppe Price-key
00 262 20	Transistor 2 SA 952 L	Transistor 2 SA 952 L	Q 01-03,05	A 5
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 04	A 6
00 262 19	Transistor 2 SA 733 P,Q	Transistor 2 SA 733 P,Q	Q 06,11	A 4
00 262 20	Transistor 2 SA 952 L	Transistor 2 SA 952 L	Q 07,14	A 5
00 665 95	Transistor 2 SC 2001 L,M	Transistor 2 SC 2001 L,M	Q 08,10	A 2
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 12,13-18	A 6
00 577 00	Transistor DTC 114 TS	Transistor DTC 114 TS	Q 002	A 0
00 137 57	Transistor 2 SC 1675 L	Transistor 2 SC 1675 L	Q 101,110	A 7
00 665 95	Transistor 2 SC 2001 L	Transistor 2 SC 2001 L	Q 102,105	A 2
00 577 01	Transistor 2 SK 161 GR	Transistor 2 SK 161 GR	Q 103	A 0
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 104,106	A 6
00 346 91	Transistor 2 SC 2878 A	Transistor 2 SC 2878 A	Q 107	A 6
00 577 02	Transistor DTA 124 ES	Transistor DTA 124 ES	Q 108,518	A 0
00 374 06	Transistor DTC 124 ES	Transistor DTC 124 ES	Q 109	A 3
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 111	A 6
00 137 57	Transistor 2 SC 1675 L	Transistor 2 SC 1675 L	Q 112,113	A 7
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 114,115	A 6
00 577 02	Transistor DTA 124 ES	Transistor DTA 124 ES	Q 116,117	A 0
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 201-209	A 6
00 327 62	Transistor DTC 114 ES	Transistor DTC 114 ES	Q 301-303	A 6
00 577 00	Transistor DTC 114 TS	Transistor DTC 114 TS	Q 304-321	A 0
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 315	A 6
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 317,318	A 6
00 327 62	Transistor DTC 114 ES	Transistor DTC 114 ES	Q 319,413	A 6
00 262 19	Transistor 2 SA 733 P,Q	Transistor 2 SA 733 P,Q	Q 320,325	A 4
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 322-331	A 6
00 262 19	Transistor 2 SA 733 P,Q	Transistor 2 SA 733 P,Q	Q 332,416	A 4
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 333,334	A 6
00 577 00	Transistor DTC 114 TS	Transistor DTC 114 TS	Q 361	A 0
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 401,402	A 6
00 577 00	Transistor DTC 114 TS	Transistor DTC 114 TS	Q 403-404	A 0
00 327 63	Transistor DTA 144 ES	Transistor DTA 144 ES	Q 405	A 2
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 407-412	A 6
00 665 95	Transistor 2 SC 2001 L	Transistor 2 SC 2001 L	Q 414,415	A 2
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 417,418	A 6
00 577 03	Transistor 2 SC 3243 D,E	Transistor 2 SC 3243 D,E	Q 419	A 0
00 577 00	Transistor DTC 114 TS	Transistor DTC 114 TS	Q 430	A 0
00 327 63	Transistor RN 2204 (DTA 144 ES)	Transistor RN 2204	Q 501,502	A 2
00 346 91	Transistor 2 SC 2878 A	Transistor 2 SC 2878 A	Q 504,505	A 6
00 249 59	Transistor 2 SK 246 GR	Transistor 2 SK 246 GR	Q 506	A 5
00 590 67	Transistor 2 SD 1407 Y	Transistor 2 SD 1407 Y	Q 507	A 8
00 590 68	Transistor 2 SA 965 Y	Transistor 2 SA 965 Y	Q 508	A 2
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 509,510	A 6
12 695 58	Transistor 2 SD 313 E,F	Transistor 2 SD 313 E,F	Q 511	A 4
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 512-516	A 6
00 262 20	Transistor 2 SA 952 L	Transistor 2 SA 952 L	Q 513	A 5
00 137 63	Transistor 2 SA 945 P,Q	Transistor 2 SA 945 P,Q	Q 901	A 6
00 666 22	Phototransistor ST 7 L	Phototransistor ST 7 L	PH 01	A 4
00 665 98	Diode 1 SS 176	Diode 1 SS 176	D 01,02	A 1
00 068 72	Zenerdiode 5,1 V	Diode zener 5.1 V	D 03,09	A 1
00 061 31	Zenerdiode 10 V	Diode zener 10 V	D 04	A 2
00 317 29	Diode IN 4002 L	Diode IN 4002 L	D 05-08	A 2
00 665 98	Diode 1 SS 176	Diode 1 SS 176	D 12-14	A 1
00 666 21	Diode EL 7L - IR	Diode EL 7L	D 17	A 4
00 665 98	Diode 1 SS 176	Diode 1 SS 176	D 001-016	A 1
00 576 94	LED 204 PYT gelb	LED 204 PYT yellow	D 018-025	A 1
00 386 03	LED 204 IT rot	LED 204 IT red	D 026-028	A 2
00 348 97	LED 1254 GD grün	LED 1254 GD green	D 029	A 3
00 112 41	Diode IN 4148	Diode IN 4148	D 101	A 2
00 665 98	Diode 1 SS 176	Diode 1 SS 176	D 102,104	A 1
00 652 42	Diode 1 SV 149 B	Diode 1 SV 149 B	D 103	A 7
00 060 40	Zenerdiode 5,6 V	Diode zener 5.6 V	D 105	A 3
00 665 98	Diode 1 SS 176	Diode 1 SS 176	D 201,202	A 1

Best.-Nr. Part No.	Bezeichnung	Description	Pos.	Preisgruppe Price-key
00 068 72	Zenerdiode 5,1 V	Diode zener 5.1 V	D 203	A 1
00 665 98	Diode 1 SS 176	Diode 1 SS 176	D 301,322	A 1
00 112 41	Diode IN 4148	Diode IN 4148	D 304,307	A 2
00 237 97	Zenerdiode 4,3 V	Diode zener 4.3 V	D 323	A 2
00 665 98	Diode 1 SS 176	Diode 1 SS 176	D 333,401	A 1
00 129 49	Zenerdiode 3 V	Diode zener 3 V	D 402	A 1
00 577 07	Diode 1 SS 142	Diode 1 SS 142	D 403	A 3
00 112 41	Diode IN 4148	Diode IN 4148	D 502-505	A 2
00 406 79	Zenerdiode 6,2 V	Diode zener 6.2 V	D 506	A 1
00 317 29	Diode IN 4002 L	Diode IN 4002 L	D 507-510	A 2
00 112 41	Diode IN 4148	Diode IN 4148	D 511	A 2
00 317 29	Diode IN 4002 L	Diode IN 4002 L	D 512,513	A 2
00 590 69	Diode GBU 6 D	Diode GBU 6 D	D 520	B 4
00 387 73	Zenerdiode 15 V	Diode zener 15 V	D 522,523	A 1
00 112 41	Diode IN 4148	Diode IN 4148	D 524,525	A 2
00 377 58	Zenerdiode 13 V	Diode zener 13 V	D 526	A 1
00 112 41	Diode IN 4148	Diode IN 4148	D 527,528	A 2
00 665 98	Diode 1 SS 176	Diode 1 SS 176	D 540,541	A 1
00 112 41	Diode IN 4148	Diode IN 4148	D 542	A 2
00 321 63	Zenerdiode 27 V	Diode zener 27 V	D 544,545	A 2
00 265 20	LED LTL-3218 rot	LED LTL-3218 red	D 701	A 5
00 590 70	LED EL 124 Y ocker	LED EL 124 Y amber	D 901-925	A 2
00 317 29	Diode IN 4002 L	Diode IN 4002 L	D 926-927	A 2
00 668 85	Spule 10 uH "K"	Peaking coil 10 uH "K"	L 01,03	A 3
00 668 40	AM Antennenspule TWS-358-676	MW antenna coil	L 101	A 7
00 577 11	Spule LW Antenne	LW antenna coil	L 102	A 2
00 668 41	Spule 220 uH "K"	Peaking coil 220 uH "K"	L 103,104	A 2
00 668 45	Drossel Motor 470 uH "K"	Motor choke 470 uH "K"	L 202	A 3
00 577 12	Filter Falle TWS-358-739	Trap filter TWS-358-739	L 301,302	A 4
00 577 13	Spule Falle MPX TWS-358-682	MPX trap coil TWS-358-682	L 401,402	A 4
12 898 70	Spule 22 uH "K"	Inductance coil 22 mH "K"	L 403,404	A 0
00 577 14	Spule Falle	Trap coil	L 406,407	A 1
00 577 15	Spule Bias osz. TWS-358-639	Bias oscillator coil	L 408	A 1
00 668 48	Spule AM Oszillator	MW oscillator coil	T 102	A 3
00 577 16	Spule LW Oszillator	LW oscillator coil	T 103	A 0
00 668 49	Spule AM ZF (Übertrager)	AM IFT	T 104	A 4
00 668 47	Spule FM Demodulator R22-E788	FM IFT	T 105	A 4
00 668 50	Tiefpassfilter FTZ 10FE01	FTZ L.P.F. 10FE01	T 106	B 1
00 668 86	Schwingkreis CST 4,0 MHz	Resonator CST 4.0 MGW	CF 01	A 6
00 658 81	Keramikfilter SFE 10,7 MHz	Ceramic filter SFE 10.7 MHz	CF 101,2	A 5
00 577 10	Keramikfilter SFZ 450 G3L	Ceramic filter SFZ 450 G3L	CF 103	A 2
00 666 07	Quarz 4,5 MHz	Crystal 4.5 MHz	X 001	B 1
12 895 02	Quarz 33,8688 MHz	Crystal 33.8688 MHz	XTL 01	A 8
00 577 32	Kondensator 0,1 F/5,5 V - Speicher	Capacitor 0.1 F/5.5 V	C 034	A 4
00 577 52	Metox 180 Ohm/1 Watt	Fuse resistor 180 Ohm/1 Watt	R 53	A 0
00 380 19	Metox 4R7/0,5 Watt	Fuse resistor 4R7/0.5 Watt	R 112	A 1
00 577 22	Metox 220 Ohm/0,5 Watt	Fuse resistor 220 Ohm/0.5 Watt	R 136	A 0
00 577 23	Metox 100 Ohm/0,5 Watt	Fuse resistor 100 Ohm/0.5 Watt	R 235-237	A 0
00 577 23	Metox 100 Ohm/0,5 Watt	Fuse resistor 100 Ohm/0.5 Watt	R 270	A 0
00 577 25	Metox 33 Ohm/0,5 Watt	Fuse resistor 33 Ohm/0.5 Watt	R 275	A 0
00 577 26	Metox 22 Ohm/2 Watt	Fuse resistor 22 Ohm/2 Watt	R 459	A 0
00 577 23	Metox 100 Ohm/0,5 Watt	Fuse resistor 100 Ohm/0.5 Watt	R 521,521A	A 0
00 651 26	Metox 4R7/2 Watt	Fuse resistor 4R7/2 Watt	R 527,528	A 2
00 660 97	Metox 470 Ohm/2 Watt	Fuse resistor 470 Ohm/2 Watt	R 533,534	A 2
00 590 71	Metox 1k5/3 Watt	Fuse resistor 1k5/3 Watt	R 535	A 1
00 590 72	Metox 33 Ohm/0,25 Watt	Fuse resistor 33 Ohm/0.25 Watt	R 542	A 0
00 584 17	Metox 68 Ohm/0,5 Watt	Fuse resistor 68 Ohm/0.5 Watt	R 546	A 0

Best.-Nr. Part No.	Bezeichnung	Description	Pos.	Preisgruppe Price-key
00 384 13	Metox 47 Ohm/1 Watt	Fuse resistor 47 Ohm/1 Watt	R 549	A 3
00 403 71	Metox 33 Ohm/1 Watt	Fuse resistor 33 Ohm/1 Watt	R 550	A 1
00 590 73	Metox 4k7/1 Watt	Fuse resistor 4k7/1 Watt	R 551	A 0
00 656 86	Metox 2k7/1 Watt	Fuse resistor 2k7/1 Watt	R 563	A 1
00 388 35	Metox 4R7/1 Watt	Fuse resistor 4R7/1 Watt	R 580,581	A 3
00 651 28	Metox 10 Ohm/1 Watt	Fuse resistor 10 Ohm/1 Watt	R 598,599	A 2
00 668 34	Trimmpoti 5 kOhm	SFR 5 kOhm	SFR 101	A 3
00 668 90	Trimmpoti 10 kOhm	SFR 10 kOhm	SFR 102-402A	A 3
00 577 43	Trimmpoti 200 kOhm	SFR 200 kOhm	SFR 403,404A	A 0
00 668 83	Trimmpoti 50 Kohm	SFR 50 kOhm	VR 01	A 2
00 577 17	Drehwiderstand 100 kx2, Höhen, Tiefen	Variable resistor 100 kx2	VR 001,002	A 4
00 577 18	Drehwiderstand 100 k, Balance	Variable resistor 100 k	VR 003	A 3
00 577 19	Drehwiderstand 50 kx2, Lautstärke	Variable resistor 50 kx2	VR 201	C 5
00 577 20	Drehwiderstand 50 k, Mic Mix	Variable resistor 50 k	VR 202	A 1
00 577 21	Drehwiderstand 50kx2, Aussteuerung	Variable resistor 50 kx2	VR 601	A 3
00 668 51	Taster SKHVBH 3920-CP	Tact switch	S divers	A 2
00 577 53	Mikroschalter LSC 1223-31, Slider	Leaf switch LSC 1223-31	S 16	A 1
00 668 84	Mikroschalter MLS-1	Leaf switch MLS-1	S 17	A 5
00 668 61	Mikroschalter LS-R112U-13A, Record	Leaf switch LS-R112U-13A	S 301	A 4
00 668 60	Mikroschalter LSA-1115 RK1, Play	Leaf switch LSA-1115 RK1	S 302,303	A 3
00 577 33	Druckschalter Front	Push switch	SW 001-004	A 2
00 577 34	Druckschalter Voice cut	Push switch	SW 201	A 0
00 577 35	Schiebeschalter Beat cut	Slide switch	SW 401	A 0
00 590 74	Cinchbuchse (2) PHONO	2P RCA jack	JK 02	A 4
00 668 53	Anschlußterminal AM Antenne (2)	2P antenna terminal	JK 101	B 2
00 577 36	Cinchbuchse (2) AUX	2P RCA jack	JK 201	A 0
00 577 37	Anschlußklemmen LS (4)	4P speaker terminal	JK 501	A 2
00 577 38	Klinkenbuchse Kopfhörer	Headphone jack	JK 601	A 1
00 577 39	Klinkenbuchse Mikrofon	Headphone jack	HP 201	A 1
00 577 40	Relais OVR-SH-212L	Relay OVR-SH-212L	RY 401	B 3
12 897 81	Relais OMIT-SS-112DM	Relay OMIT-SS-112DM	RY 501	B 4
00 577 41	Relais VB-24MBU	Relay VB-24MBU	RY 502	B 5
00 668 56	FM Tuner FE415-G11B	FM front end FE 415-G11B	FE 101	D 4
00 577 62	IR Empfänger LTM-8834P	Remote receiver LTM-8834P	SEN 001	A 9
00 590 75	Netztrafo EI-105	Power transformer EI-105	T 501	F 3
00 590 76	Trafo Stand-By EI-35	Power transformer EI-35	T 502	B 8
00 060 64	IEC Sicherung T3,15 A/250 V	Fuse T3.15 A/250 V	F 502	A 2
00 067 54	IEC Sicherung T6,3 A/250 V	Fuse T6.3 A/250 V	F 503,504	A 1
00 590 77	LCD Display CD	LCD display HLC 8507-012311	LCD 01	C 9
00 668 58	Lampe Display 6V/60 mA	Lamp 6V/610 mA	LP 01-02	A 3
00 590 78	LCD Display Tuner	LCD display HLC 8590-012210	LCD 001	D 1
00 668 58	Lampe Display 6V/60 mA	Lamp 6V/610 mA	LP 001,002	A 3

Abgleichanweisung Tuner
Alignment procedure tuner

Table with 2 columns: Benötigte Geräte / Equipment required, Hinweise: / Notes. Lists required equipment (AM signal generator, FM signal generator, VTVM, DC volt meter) and alignment notes (signal input level, volume control, standard modulation, 8 ohm load).

MW ZF Abgleich/MW IF Adjustment

Table for MW ZF Adjustment with columns: Signal Source, Signal Generator Frequency, Alignment Indicator, Frequency Setting, Adjustment, Remarks. Includes steps for sweep generator and repeat adjustments.

MW HF Abgleich/MW RF Adjustment

Table for MW HF Adjustment with columns: Signal Source, Signal Generator Frequency, Alignment Indicator, Frequency Setting, Adjustment, Remarks. Includes steps for 531 kHz, 1602 kHz, 603 kHz, and 1404 kHz.

LW HF Abgleich/LW RF Adjustment

Table for LW HF Adjustment with columns: Signal Source, Signal Generator Frequency, Alignment Indicator, Frequency Setting, Adjustment, Remarks. Includes steps for 153 kHz, 281 kHz, 164 kHz, and 272 kHz.

FM HF Abgleich/FM RF Adjustment

Table for FM HF Adjustment with columns: Signal Source, Signal Generator Frequency, Alignment Indicator, Frequency Setting, Adjustment, Remarks. Includes steps for 87.5 MHz, 108 MHz, 90 MHz, and 106 MHz.

FM MPX Abgleich/FM MPX Adjustment

Table for FM MPX Adjustment with columns: Item, Signal Source, Signal Generator Frequency, Alignment Indicator, Dial Setting, Tuning Adjustment, Remarks. Includes notes on signal generator and frequency counter.

FM ZF Abgleich/FM IF Adjustment

Table for FM ZF Adjustment with columns: Signal Source, Signal Generator, Alignment Indicator, Frequency Setting, Adjustment, Remarks. Includes steps for FM IF sweep generator.

Abgleich Verzerrung/Distortion Adjustment

Table for Distortion Adjustment with columns: Item, Signal Source, Alignment Indicator, Adjustment, Remarks. Includes steps for 98MHz DEV. and 60dB Signal.

Abgleichanweisung Cassette
Alignment procedure cassette

Abgleich Bandgeschwindigkeit/Tape Speed Adjustment

Table for Normal Speed Adjustment with columns: Step, Subject, Measure Output, Setting, Adjustment, Adjust For, Remarks. Includes notes on TEAC TEST TAPE and 3 kHz signals.

High Speed Adjustment

Table for High Speed Adjustment with columns: Step, Subject, Measure Output, Setting, Adjustment, Adjust For, Remarks. Includes notes on DUBBING switch and NORMAL/HIGH switch.

Playback Adjustment

Notes: 1. Before this adjustment, clean REC/P.B. head surface.
2. For this adjustment, use TEAC TEST TAPE MTT-114NA and MTT-150.
3. Set the Dolby NR switch to OFF.

a-Side Mecha. Adjustment

Step	Subject	Measure Output	Setting	Adjustment	Adjust For	Remarks
1	REC/P.B. head adj.	VTVM connected to TP306 (R), TP308 (GND) & TP305 (L).	Playback the test tape MTT-114NA.	Adjust the azimuth adjusting L side screw in Fig. 4	Max. output both channels.	After this adjustment, lock the screw with paint.
2	Playback Level adj.	Same as above	Playback the test tape MTT-150.	Adjust each SFR303 (L) and SFR304 (R), main board.	548 mV ± 1 dB	See Fig. 5

b-Side Mecha. Adjustment

Step	Subject	Measure Output	Setting	Adjustment	Adjust For	Remarks
1	P.B. head adj.	VTVM connected to TP306 (R), TP308 (GND) & TP305 (L).	Playback the test tape MTT-114NA.	Adjust the azimuth adjusting L side screw in Fig. 3	Max. output both channels.	After this adjustment, lock the screw with paint.
2	Playback Level adj.	Same as above.	Playback the test tape MTT-150.	Adjust each SFR301 (L) and SFR302 (R), main board.	548 mV ± 1 dB	See Fig. 5

Abgleich Vormagnetisierung/Bias Adjustment

Note: 1. For, this adjustment, use test tape AC-224
2. Set the Dolby NR switch.....OFF

Step	Subject	Measure Output	Setting	Adjustment	Adjust For	Remarks
1	Bias frequency adj.	Frequency counter connected to TP402 (+) and TP401 (-).	1. Load the test tape AC-224 2. Push the REC and PLAY button 3. Beat switch at position "1".	Turn the core of L408	80KHz ± 1kHz	See Fig. 5

Abgleich Vormagnetisierung/Bias Leakage Adjustment

Notes: Use test tape AC-224

Step	Subject	Measure Output	Setting	Adjustment	Adjust For	Remarks
1	Trap coil adj.	VTVM connected to TP306 (R), TP308 (GND) & TP305 (L).	AC-224 Push the REC and Play button.	Turn the core of L301 L-CH, and L302 R-CH. main board.	Max. output both channels. (under 10mV)	

Abgleich Filter (nur Cassette A)/Filter Adjustment (a Side Mecha. only)

Notes: 1. Dolby Switch; Hi-speed switch OFF.

Step	Subject	Input Signal	Measure Output	Setting	Adjust For	Remarks
1	19kHz Filter adj.	Feed 19 kHz from audio S.G into MIC Jack.	VTVM connected to TP306 (R), TP308 (GND) & TP305 (L)	Push the REC and Play button.	Turn the core of L401 L-CH and L402 R-CH. Min. output both channels.	See Fig. 5

Abgleich Vormagnetisierung (nur Cassette A)/Bias Current Adjustment (A-Side Mecha. only)

Notes: 1. Set tape selector in normal position.

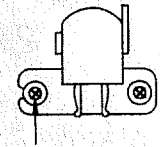
Step	Subject	Measure Output	Setting	Adjustment	Adjust For	Remarks
1	Bias Current	VTVM connected to TP303 and TP304 (GND)	Test tape AC-224 Push the REC and Play button.	Adjust for SFR404	O/P= 8.2mV	Normal
2	Bias Current	VTVM connected to TP301 and TP302 (GND)	Same as above	Adjust for SFR403	O/P= 8.2mV	Normal
3	Bias Current	VTVM connected to TP303 and TP304 (GND)	Test tape AC-224 Push the REC and Play button.	None	Check O/P= 13mV	Cr02
4	Bias Current	VTVM connected to TP301 and TP302 (GND)	Same as above	None	Check O/P= 13mV	Cr02

Abgleich A/W Pegel/R/P Level Adjustment

Notes 1. Set Dolby Switch and Hi-speed Switch OFF.

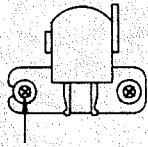
Step	Subject	Input Signal	Measure Output	Setting	Adjustment	Adjust For	Remarks
1	R/P level adj.	f= 1kHz from audio S.G. into MIC. jack.	VTVM connected to TP306 (R), TP308 (GND) & TP305 (L)	Test tape AC-224 Push the REC and PLAY button.	Adjust for SFR401 (L) and SFR402 (R).	O/P=200mV (±1dB)	See Fig.5
2	R/P level adj.	f= 12.5kHz from audio S.G. into MIC. jack.	VTVM connected to TP306 (R), TP308 (GND) & TP305 (L)	Test tape AC-224 Push the REC and PLAY button.	Adjust for SFR403 (L) and SFR404 (R).	Level of 12.5kHz= Level of 1 kHz	See Fig.5

PLAY HEAD



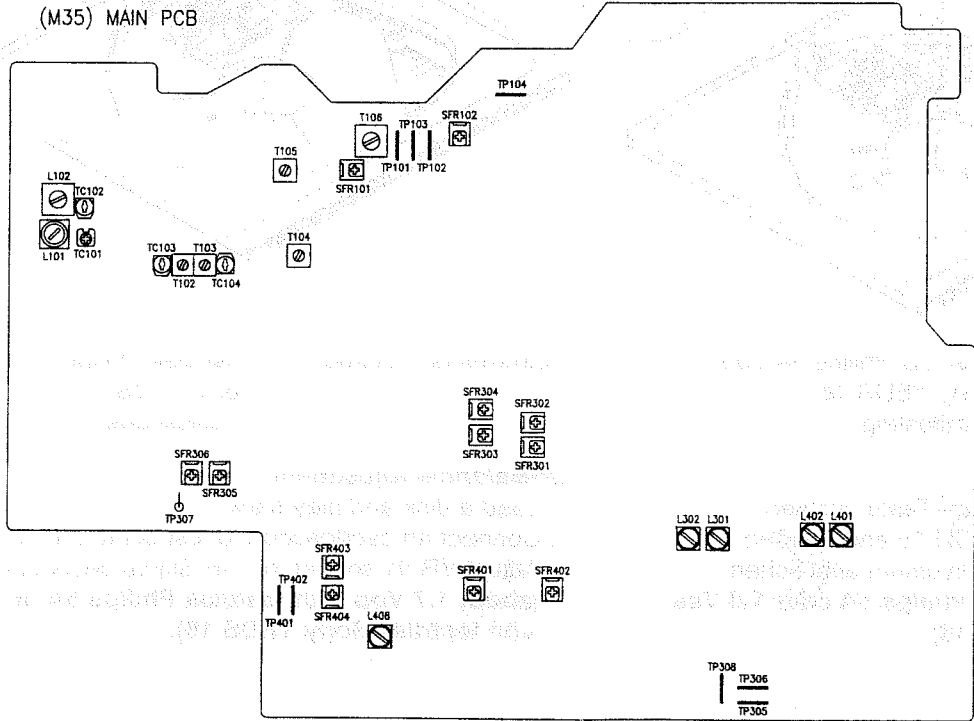
SCREW (L) Figure 3

R/P HEAD



SCREW (L) Figure 4

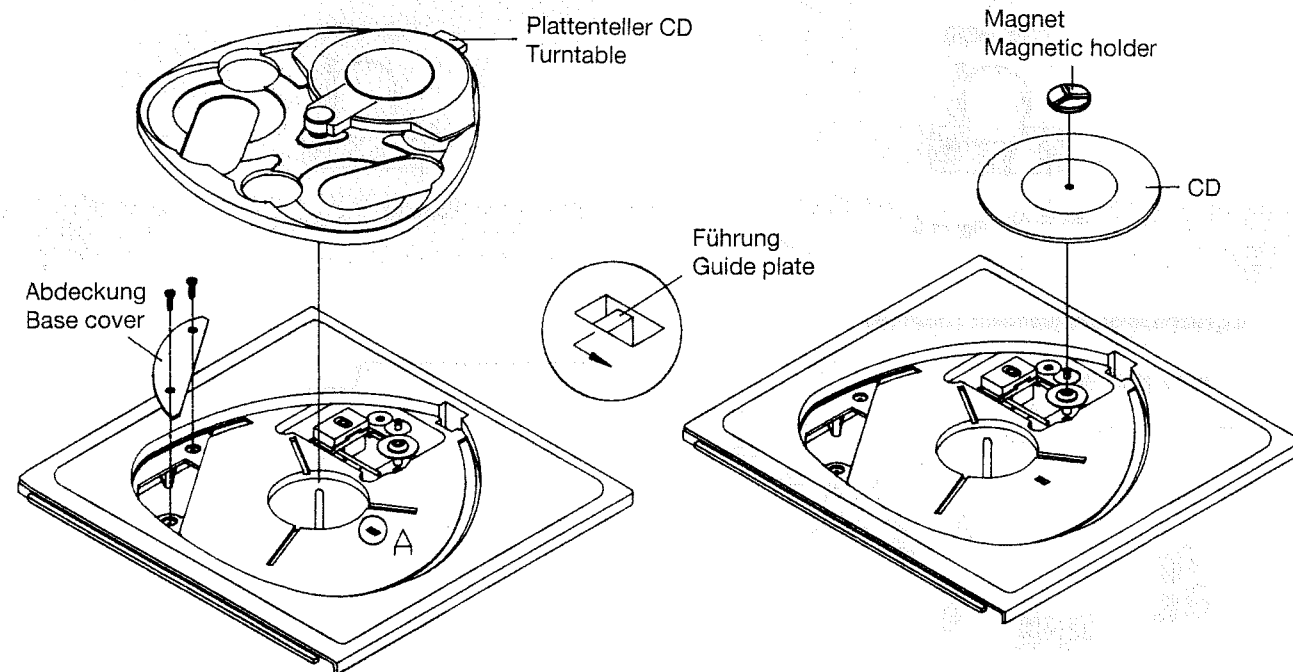
Abgleichpunkte/Adjustment Locations



Abgleichanweisung CD Spieler

Vor dem Abgleich sind folgende Punkte durchzuführen:

- Entfernen des Plattentellers, indem die Führung nach rechts geschoben wird.
- Entfernen der Abdeckung durch Lösen der beiden Schrauben.



Benötigte Meßgeräte:

- Test CD Philips 5A oder Sony YEDS 18
- Oszilloskop

EF-Balance-Abgleich

1. CD-Platte einlegen und Play-Taste drücken.
2. Oszilloskop an Testpunkt CN 15 anschließen.
3. HF-Signal mit VR 01 auf Maximum abgleichen (ca. 1,7 V_{ss} mit Test-CD Philips 5A oder 1,6 V_{ss} mit Test CD Sony YEDS 18).

Alignment procedure CD player

The following steps should be performed before adjustment procedure:

- Remove the turntable by sliding the guide plate outward.
- Disassemble the base cover by removing 2 screws.

Instruments required:

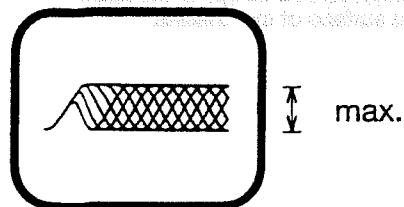
- Test disk Philips 5A or Sony YEDS 18
- Oscilloscope

EF-Balance-adjustment

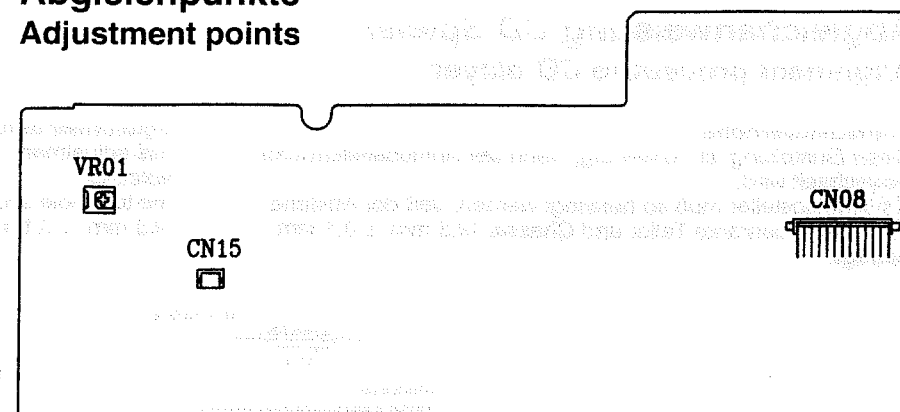
1. Load a disk and play back.
2. Connect an oscilloscope to test point CN 15.
3. Adjust VR 01 so that the RF-Signal becomes maximum (about 1.7 V_{pp} with testdisk Philips 5A or 1.6 V_{pp} with testdisk Sony YEDS 18).

HF-Signal
RF-Signal

The screen of oscilloscope

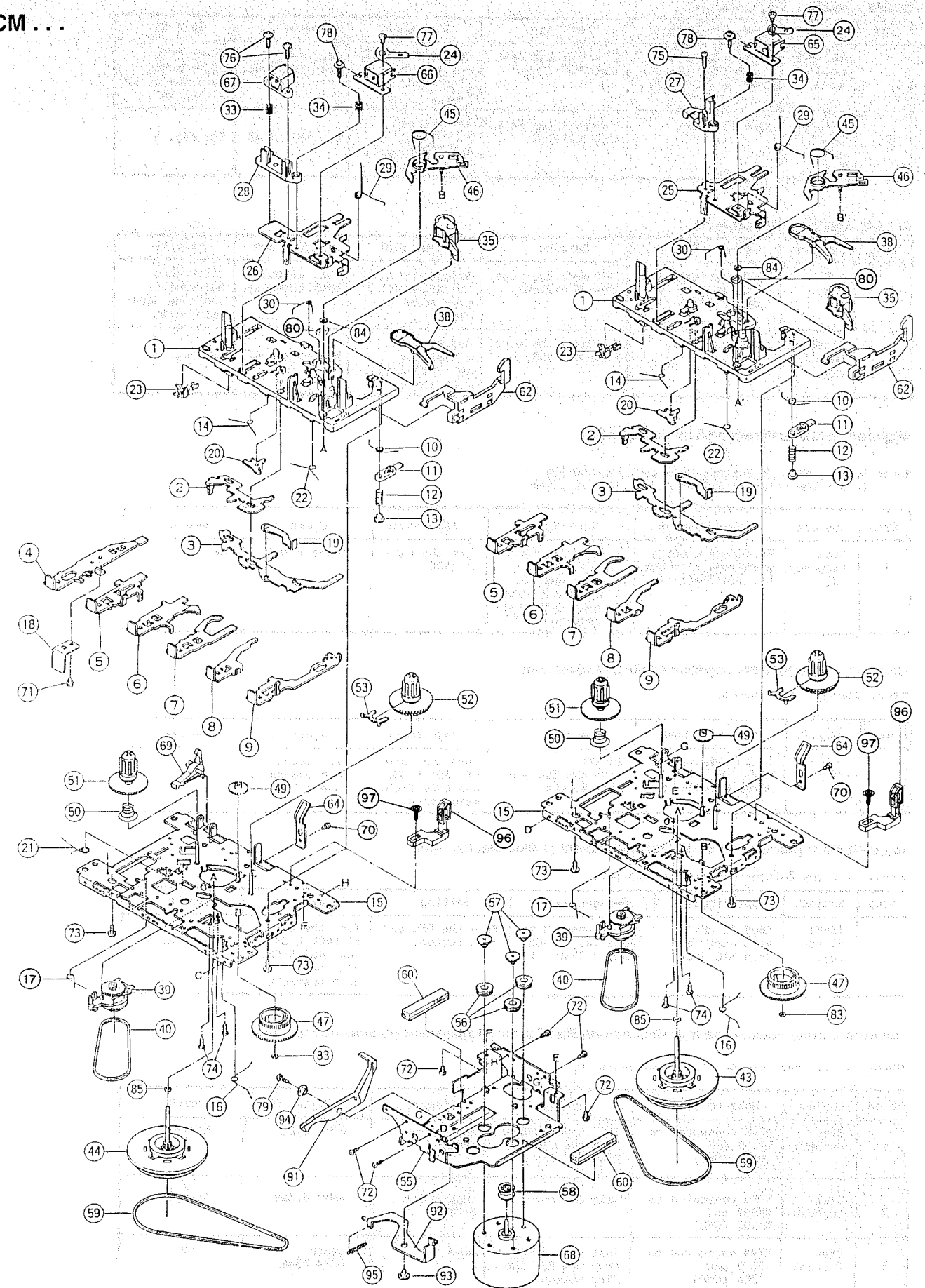


Abgleichpunkte
Adjustment points



Explosionsdarstellung Cassette Exploded view cassette

CM ...

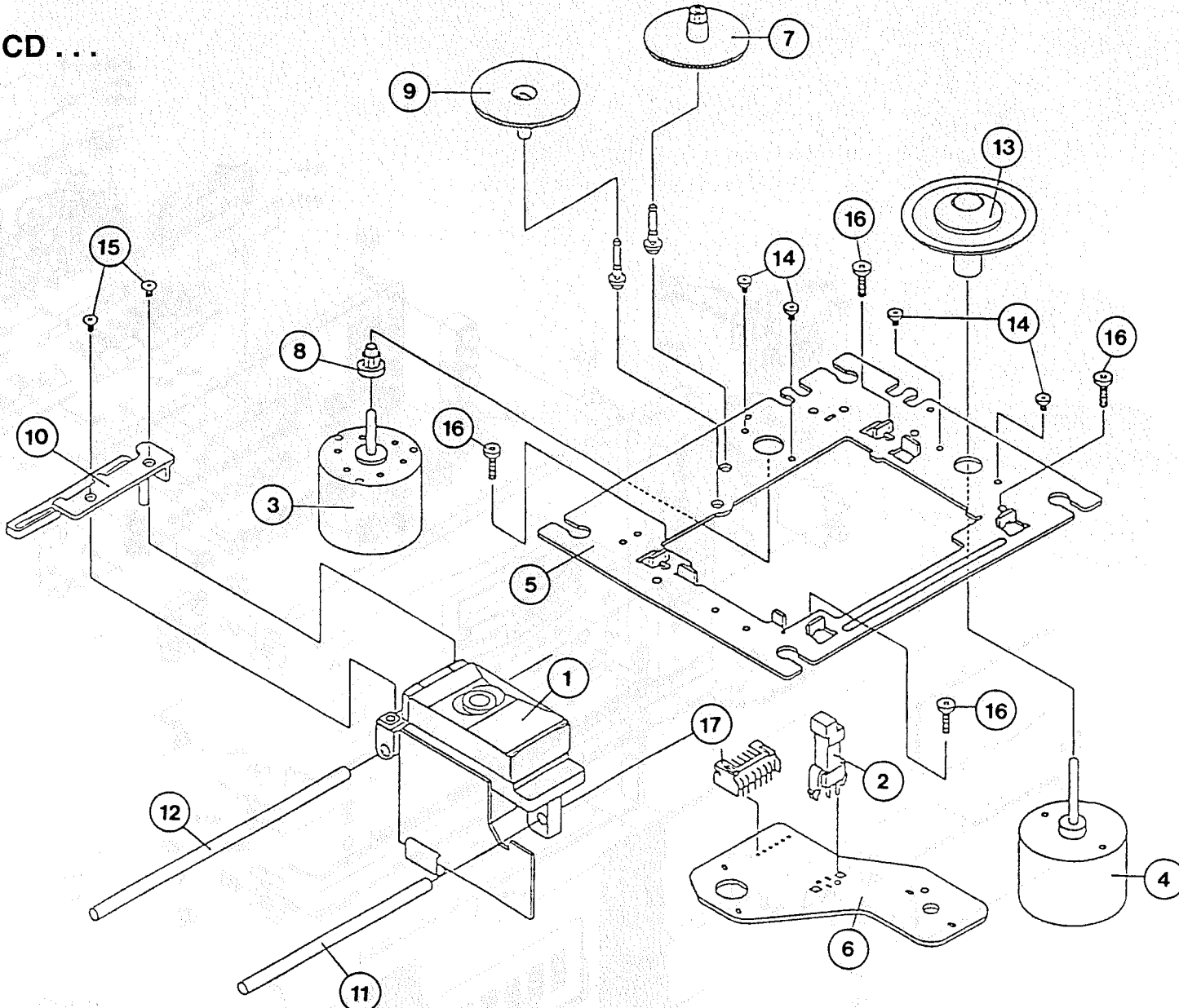


Ersatzteilliste Cassettenmechanik
Spare parts list cassette mechanism

Best.-Nr. Part No.	Bezeichnung	Description	Pos.	Preisgruppe Price-key
00 665 85	Cassettenmechanik kpl. TN-21 ZSW-1188	Cassette mechanism assembly TN-21 ZSW-1188	M 20	E 6
00 468 63	Feder Pauserasthebel	P control spring	CM 10	A 3
00 464 17	Pauserasthebel	Pause lever	CM 11	A 5
00 441 30	Druckfeder Pauserasthebel	Pause lever spring	CM 12	A 3
00 441 31	Sicherungsstöpsel Pause	Pause stopper	CM 13	A 2
00 324 28	Feder Tastenhebel (Vor-, Rücklauf)	Button lever spring	CM 14	A 3
00 468 64	Feder Aufnahme Taste	Record button lever spring	CM 21	A 3
00 324 23	Feder Tastenhebel (Stop, Pause)	Button lever spring (B)	CM 22	A 3
00 667 09	Mikroschalter MSW-1541 T	Leaf switch MSW-1541 T	CM 23	A 4
00 457 60	Feder Kopfträgerplatte	Panel P spring	CM 29	A 4
00 482 03	Feder Bandandruckrolle	M control spring	CM 30	A 4
00 324 32	Feder Löschkopf	EH spring	CM 33	A 3
00 324 35	Feder A/W-Kopf	Azimuth spring	CM 34	A 3
00 441 34	Bandandruckrolle kpl.	Pinch roller arm assembly	CM 35	B 2
00 441 35	Tasthebel Endabschaltung	Sensing lever	CM 38	A 6
00 441 37	Rutschkupplung kpl.	RF clutch assembly	CM 39	B 1
00 441 38	Riemen Rutschkupplung	RF belt	CM 40	B 3
00 468 66	Schwungmasse A/W-Laufwerk	Flywheel assembly rec/play	CM 43	B 7
00 468 65	Schwungmasse Wiedergabe Laufwerk	Flywheel assembly play	CM 44	B 7
00 660 85	Feder	Gear plate spring	CM 45	A 3
00 441 36	Kurvenzahnrad	Cam gear	CM 47	B 2
00 441 40	Zahnrad Vorlauf	Fast forward gear	CM 49	A 7
00 443 19	Feder Wickelteller links	Back tension spring	CM 50	A 3
00 441 41	Wickelteller links	Supply reel assembly	CM 51	B 0
00 441 42	Wickelteller rechts	Take up reel assembly	CM 52	B 1
00 464 86	Spange Wickelteller	Sensor	CM 53	A 3
00 324 53	Gummipuffer Motor	Motor rubber	CM 56	A 2
00 324 54	Schraube Motor	Motor collar screw	CM 57	A 2
00 447 78	Pulley-Motor	Motor pulley	CM 58	A 6
00 488 30	Antriebsriemen	Main belt	CM 59	B 4
00 464 18	Gleithebel Eject	Eject slide lever	CM 62	A 8
00 324 59	Cassettenandruckfeder	Pack spring	CM 64	A 5
00 667 10	A/W Kopf MS 15 R-AA 2 N 1	Play head MS 15 R-AA 2 N 1	CM 65	C 3
00 667 10	A/W Kopf MS 15 R-AA 2 N 1	Record/play head MS 15 R-AA 2 N 1	CM 66	C 3
00 667 11	Löschkopf LE 158-C1	Erase head LE 15 B-C1	CM 67	B 9
00 667 12	Motor SHU-2 LOO	Motor SHU-2 LOO	CM 68	C 7
00 324 51	Aufnahmesperrhebel	Record safety lever	CM 69	A 5
00 468 61	Feder AW-Schalter	P kick lever spring	CM 95	A 2
00 667 13	Mikroschalter Bandsorte MSW-1664	Cr 02 switch MSW-1664	CM 96	A 7
00 668 60	Mikroschalter Play LSA-1115 RK 1	Leaf switch play	E 58	A 3
00 668 61	Mikroschalter Record LS-R 112 U-13 A	Leaf switch record	E 59	A 4

Explosionsdarstellung CD Mechanik
Exploded view CD mechanism

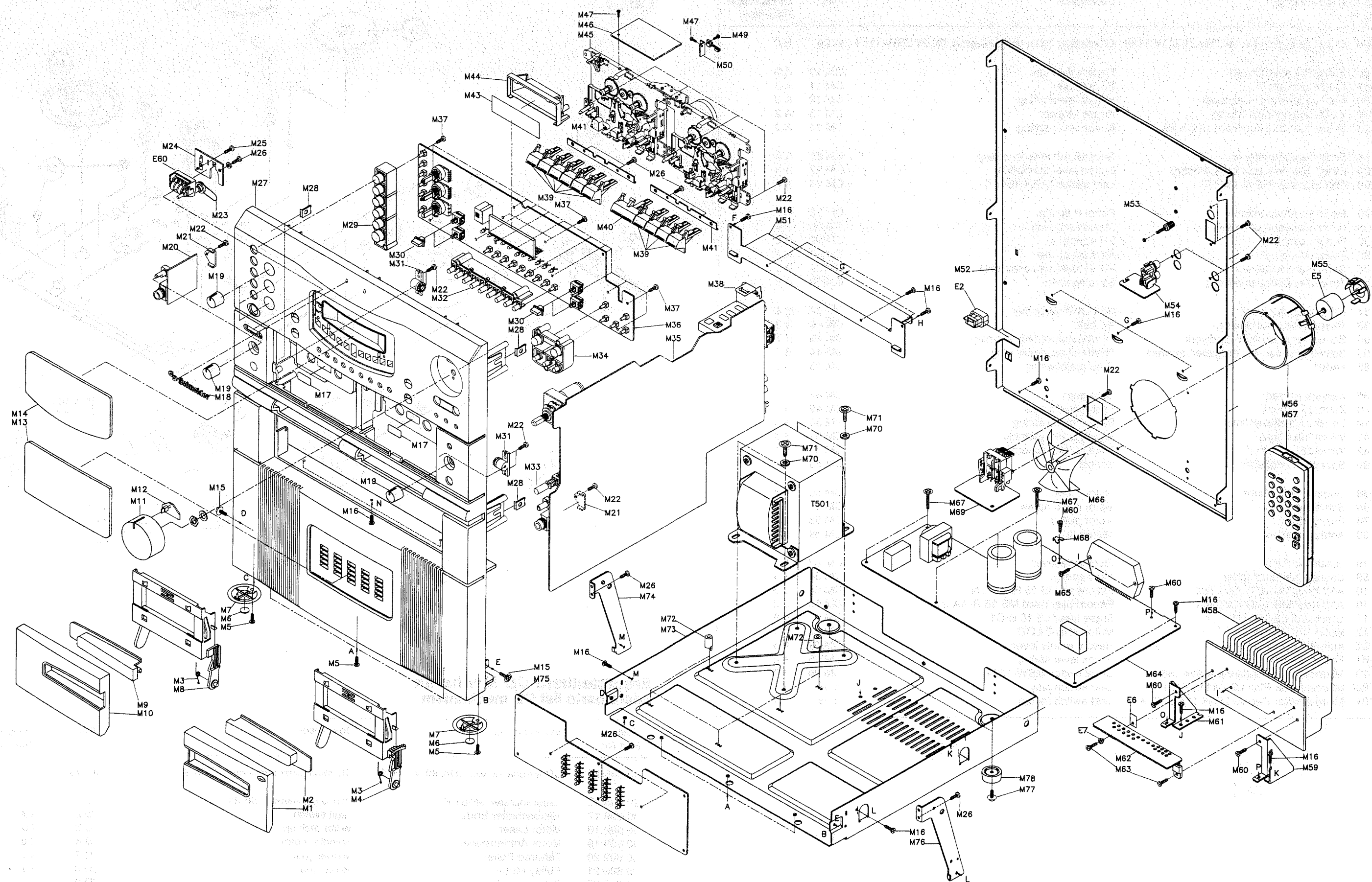
CD ...



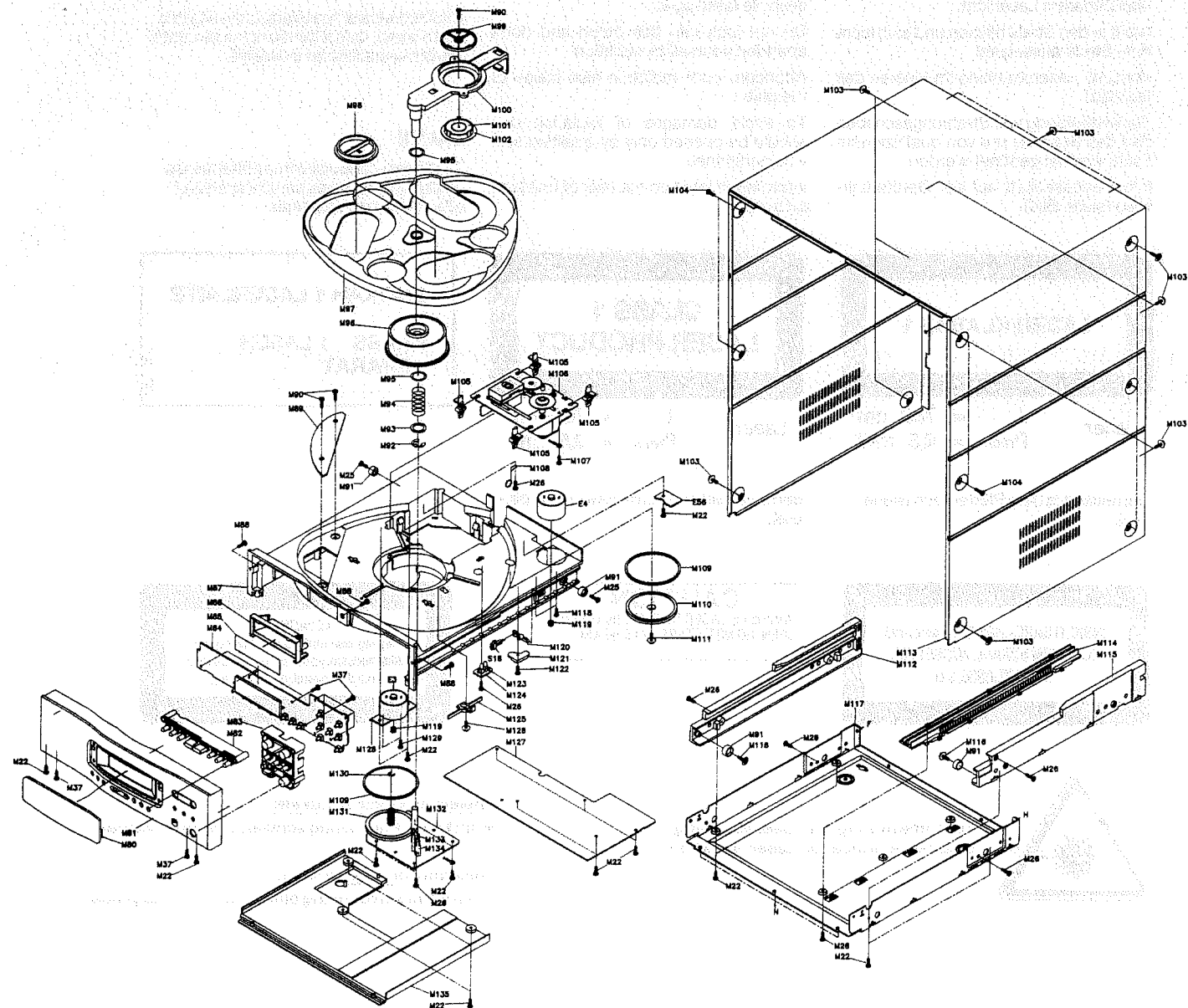
Ersatzteilliste CD Mechanik
Spare parts list CD mechanism

Best.-Nr. Part No.	Bezeichnung	Description	Pos.	Preisgruppe Price-key
00 665 87	CD Mechanik kpl. CDK 90 V 1 HYN	CD mechanism assembly CDK 90 V 1 HYN	M 103	F 3
00 666 27	Laserabtaster SF-91 P	Pick up assembly SF-91 P	CD 1	F 1
00 609 17	Mikroschalter Ende	Limit switch	CD 2	A 8
00 609 18	Motor Laser	Motor pick up	CD 3	B 9
00 609 19	Motor Antriebsteller	Spindle motor	CD 4	C 0
00 609 20	Zahnrad Pulley	Middle gear	CD 7	A 1
00 609 21	Pulley Motor	Motor gear	CD 8	A 1
00 609 22	Zahnrad Zahnschiene	Power gear	CD 9	A 1
00 609 23	Zahnschiene Laser	Plate rack	CD 10	A 1
00 609 24	Gleitstange Laser (kurz)	Guide bar (short)	CD 11	A 7
00 609 25	Gleitstange Laster (lang)	Guide bar (long)	CD 12	A 7
00 609 26	Antriebsteller kpl.	Turntable assembly	CD 13	B 2

Explosionsdarstellung Gehäuse
Exploded view housing



Explosionsdarstellung Gehäuse/CD Wechsler



Ersatzteilliste Gehäuse/CD Wechsler

Best.-Nr. Part No.	Bezeichnung	Description	Pos.	Preisgruppe Price-key
00 590 48	Blende CD-Display	CD window	M 80	A 5
00 590 49	Frontblende CD-Wechsler	CD panel	M 81	B 9
00 576 64	Tastenblock CD skip, edit	CD knob skip, edit	M 82	A 1
00 576 63	Tastenblock CD stop, play	CD knob stop, play	M 83	A 1
00 590 50	Gehäuse CD Wechsler	Changer base	M 87	C 1
00 668 63	Abdeckung Gehäuseoberteil	Main base cover	M 89	A 3
00 576 84	Pulley Slider	Pulley side	M 91	A 0
00 576 70	Sicherungsring Zahnrad	E ring	M 92	A 0
00 576 71	Scheibe Zahnrad	Washer	M 93	A 0
00 590 51	Feder Zahnrad	Clutch spring	M 94	A 1
00 576 72	Kunststoffscheibe	Poly washer	M 95	A 0
00 590 52	Zahnrad Plattenteller	Cam gear	M 96	A 4
00 590 55	Plattenteller Disc	Turntable	M 97	B 0
00 590 56	Transportsicherung Plattenteller	Transit lock	M 98	A 2
00 668 67	Abdeckung Magnet	Magnetic cover	M 99	A 2
00 590 57	Arm Niederhalter	Arm assembly	M 100	A 8
00 668 65	Magnet	Magnetic	M 101	B 0
00 668 64	Halterung Magnet	Magnetic holder	M 102	A 2
00 590 53	Halterung CD Mechanik	Cushion holder	M 105	A 1
00 576 66	Riemen Plattenteller	Belt turntable	M 109	A 0
00 590 54	Riemenscheibe Slider	Gear wheel	M 110	A 3
00 590 36	Gehäuseoberteil + Seitenwände	Top cover	M 113	E 9
00 668 70	Motor Pulley	Motor pulley	M 119	A 1
00 576 81	Betätigungsarm Schaltkontakt Slider	Shaft	M 120	A 0
00 668 81	Führung Zahnrad	Guide plate	M 125	A 2
00 576 69	Antriebsrad	Wheel	M 131	A 0
00 668 73	Schaltkontakt	Switch pin	M 133	A 2
00 668 72	Schaltergehäuse	Switch	M 134	A 2
00 666 24	Motor Plattenteller	Motor turntable	E 3	B 9
00 576 79	Motor Slider	Motor slider	E 4	B 1

Ersatzteilliste Gehäuse
Spare parts list housing

Best.-Nr. Part No.	Bezeichnung	Description	Pos.	Preisgruppe Price-key
00 590 33	Fernbedienungsgeber RC 121/SPP 95	Remote control handset ass'y	M 57	D 7
00 590 42	Cassettenfachblende B (rechts)	Cassette door right	M 1	B 2
00 590 43	Cassettenfachfenster B (rechts)	Cassette window right	M 2	A 4
00 576 48	Feder Cassettenfach	Spring Eject	M 3	A 0
00 576 46	Cassettenfach B (rechts)	Cassette holder right	M 4	A 1
00 576 40	Gehäusefuß vorne	Leg front	M 7	A 0
00 576 47	Cassettenfach A (links)	Cassette holder left	M 8	A 1
00 590 44	Cassettenfachfenster A (links)	Cassette window left	M 9	A 4
00 590 45	Cassettenfachblende A (links)	Cassette door left	M 10	B 2
00 576 51	Drehknopf Lautstärke (44)	Volume knob	M 11	A 0
00 590 46	Blende Powermeter	Power LED window	M 13	B 0
00 590 47	Blende Tunerdisplay	Tuner window	M 14	B 0
00 590 35	Schneider Logo - silber	Badge	M 18	B 2
00 576 52	Drehknopf Funktion (12)	Balance knob	M 19	A 0
00 576 50	Zählwerkriemen	Counter belt	M 23	A 0
00 590 34	Frontblende	Front escutcheon	M 27	D 6
00 576 55	Tastenblock Netz, Funktion	Function power knob	M 29	A 0
00 576 57	Taste Voice cut	Voice cut knob	M 30	A 0
00 665 80	Dämpfer Cassettenfach	Gear damper	M 31	A 5
00 576 54	Tastenblock Preset	Preset knob	M 32	A 0
00 576 56	Taste Expand, Bass, Dolby	Bass button	M 33	A 0
00 576 53	Tastenblock Tuner, Band...	Tuning, band knob	M 34	A 1
00 665 73	Klaviertaste Cassette schmal	Cassette knob	M 39	A 2
00 665 74	Klaviertaste Cassette breit	Cassette knob play	M 40	A 2
00 668 21	Diffusor Tunerdisplay	Display plate	M 43	A 4
00 668 22	Gehäuse Tunerdisplay	LCD holder	M 44	A 3
00 590 37	Gehäuserückwand	Rear panel	M 52	D 4
00 590 38	Abdeckung Ventilator	Motor cover	M 55	A 3
00 590 39	Gehäuse Ventilator	Fan case	M 56	A 7
00 590 40	Ventilator	Fan	M 66	A 4
00 576 41	Gehäusefuß hinten	Leg back	M 78	A 0
00 590 41	Motor Ventilator MDN-4RB4MRC	Micro motor	E 5	C 1
00 576 59	Rahmenantenne AM mit Halter	Loop antenna AM with holder	E 17	B 0
00 133 30	Wurfantenne FM	Antenna FM	E 18	A 4
00 576 49	Zählwerk	Counter	E 60	A 5

WICHTIGER HINWEIS/IMPORTANT NOTE

Der integrierte CD-Spieler arbeitet mit unsichtbarem Laserlicht.
Nicht in den Strahl blicken und sich nicht dem Strahl aussetzen!
Vorsicht, Laserstrahlung im Inneren des Gerätes!
Zur Vermeidung von Strahlungsschäden darf das Gehäuse nur von qualifiziertem Fachpersonal geöffnet werden.
Informationsetikett auf der Geräterückseite (siehe Bild).

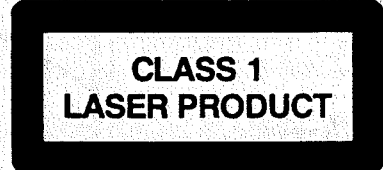
The integrated CD-Player works with invisible laser-light.
Do not look into this beam and don't abandon yourself to radiation.
Attention, laser-radiation also inside of the unit!
To avoid damages of radiation unit should be opened only by qualified service personnel.
Information label on the rear of unit (see picture).

VAROITUS!
Suojakotelo ei saa avata. Laite sisältää laseriodin, josta lähtetään näkymättömiä silmille vaarallista lasersäteilyä.
VARO!
Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.



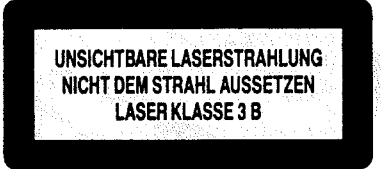
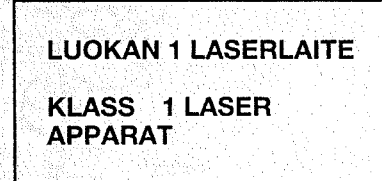
Laser $\lambda = 780 \text{ nm}$
 $P_{\text{max}} = 0,5 \text{ mW}$

Warnetikett in dem Plattenfach (siehe Bild).



Laser $\lambda = 780 \text{ nm}$
 $P_{\text{max}} = 0,5 \text{ mW}$

Warning label in record-drawer (see picture).

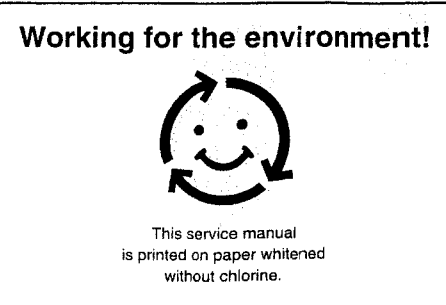
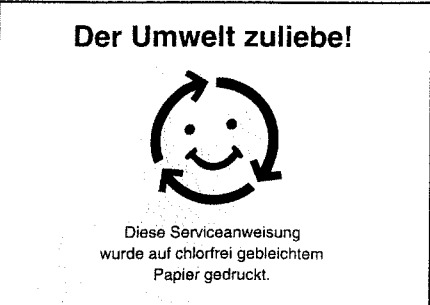


Austrittsöffnung für Laserstrahlung
Discharge orifice for Laser radiation

Hinweis für Original-Etikett:
Schrift und Umrandung schwarz, Untergrund gelb.
Indication for original label:
Letters and surrounding black, background yellow.

Bitte bei Ersatzteilbestellung die genaue Bezeichnung und Ident-Nr. (siehe Typenschild) des Gerätes sowie Bestell-Nummer und Positions-Nummer des Ersatzteils angeben.
For ordering of spare parts please state exact description and ident.-no. of unit (see silver rating label on the backside of unit) as well as part no. and position no. of required spare parts.

Benutzen Sie:
 *317298 #
oder
Telefax: 082 45/51326



Technische Änderungen vorbehalten.
Technical modifications reserved.
Herstellung: H. Holzmann Druck, 86825 Bad Wörishofen